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- 0023 Report on a personal experience in 1932 by Janet Newton Batchler, Denver ; letter in **Fate**, August 1986.
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- 0029 The lights of Changkat Asah, from Sir George Maxwell, **In Malay forests**, date unknown but events occurred 1895.
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- 0032 Phil Reeder, Will o' the Wisp (apt to lead researchers astray) from **Northern Earth Mysteries**, 30, Spring 1986 [Contributed by the author]
- 0033 Un objet lumineux dans le ciel de Durtal  
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- 0035 Garfield, When Citation Analysis strikes Ball Lightning from **Current Comments**, vol 16 no 20, 17 May 1976 [Contributed by Claude Maugé]
- 0036 La boule prend le train...en filature from **LDLN** 99 bis, May 1969 [Contributed by Jean Sider]
- 0037 The Will o' Wisp from **The mirror of literature, amusement and instruction**, vol 25, p 233-234, 11 April 1835 [Contributed by Bob Skinner]

601-0021

(MM)

## Weather Note

## OBSERVATION OF A CURIOUS ELECTRICAL PHENOMENON IN HAWAII

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## 1. INTRODUCTION

Nature follows her own schedule, not ours; and her phenomena are to be seen only by chance, not by appointment. One may simulate in the laboratory the appearance of a tornado or of lightning, but the realities are to be encountered only in the world outside.

Thus, neither of the authors has ever observed ball lightning, although they would appear to share this deficiency with ample company. In fact, according to Schonland [1], "it appears that no professional observers of the weather, such as meteorologists, have ever seen a fireball, though they must have watched, in all, many thousands of lightning flashes." Hence the student of these uncommon phenomena is frequently dependent for his knowledge of their appearance and behavior on the accounts of persons trained neither in the subject itself nor in the skills of accurately making and recording observations. The hazards in being thus dependent are obvious, and only partly to be overcome by a judicious selection of the reports; but the alternative is to regard this class of events as undeserving of serious attention. In this respect, these meteorological occurrences resemble more the reports of psychic phenomena, accidents, crimes, or other unreproducible events, which can be reconstructed only from evidence, and in which the credibility of the witness must be as carefully weighed as the nature of the report.

The meteorologist to whose attention accounts of this kind come has, therefore, the obligation to look into their authenticity—whenever possible by visiting the scene of the incident and interviewing witnesses—and then to make or assemble whatever observations seem relevant and to bring the results of his investigation to the attention of others who may be better able to interpret or evaluate them.

This is, in fact, the obligation which prompts the authors to publish the following example of such an incident and its investigation.

## 2. OBSERVATION

It began in the form of a letter which reached Pacific Regional Headquarters in late September 1965 from a

Mrs. M., a long-time resident of Honolulu. After apologizing for not knowing to whom her communication should properly have been addressed, the writer says,

I am not hunting publicity so I have hesitated about telling you of my strange experience last Wednesday. After due thought I have decided that you should have the information for your files. Also you can readily see that, being no scientist of any kind, I am still keen on acquiring knowledge.

She then goes on to ask a number of penetrating questions about the "life span", dimensions, behavior and effects of lightning, and continues,

How I wish I had realized I was witnessing one of Dame Nature's phenomena so I had really paid closer attention to it. If you would like to come and see the place where this happened . . . you may come but no publicity, please.

Then,

I am 22, belong to the Class of 1966, Stanford University.

Mrs. M's description of the incident itself begins with its physical setting—her own home. It is so well put, and so revealing of its author's personality and perceptiveness, that it is given here with only minor deletions, indicated by ( . . . ).

My patio is 30 ft. x 18½ ft., faces west and since it is longer than the garden it has a brick wall—about a foot high—around it. The roof is so steep that, unless you stand at the wall, you cannot see the sky. Across the open end is a thick mock orange hedge about three feet high. Just over the wall, in an open space, is a birdbath, not more than eight feet from the wall. The patio is paved with hand-made bricks which are so porous it is necessary to protect the lauhala mats with impervious cangoleum mats beneath them.

On Wednesday afternoon, September 22, 1965, about 2 o'clock, there was a light thunderstorm . . . with some rain. Then it cleared up, although it remained dull and the sun did not break through the clouds.

Around 5:00 p.m. . . . I was standing less than two feet from the little wall . . . with my face to the birdbath . . .

Suddenly, around the corner of the mock orange hedge, came the head of the lightning, crumpled with lots of black in the folds. As it came closer it was wider until at the end of its twenty-five foot length it was about two feet wide where it was chopped off clean. It was solid—not diaphanous or transparent or ethereal. It was the most brilliant, eye-dazzling electric blue without sparkle or scintillation.

It moved fast just above the ground and about half-way between me and the birdbath. The bowl of the birdbath, but not the ped-



estal, was visible. While it gave me the impression of being stiff and flat it might have been tubular. It showed no signs of elasticity, no flexibility; definitely it was not sinuous nor did it undulate. I had no sensation of heat. Had it been white hot, I would have been singed since it came so close to me. It was without a doubt a dying lightning, but what made it die and in my garden?

The head was making straight for the bedroom wing through a mass of lauwal ferns. The tail, if you can call a straight up and down cut a tail, was just leaving the open space when someone took out the pin of the tail-gate of Heaven's largest dump cart and sent tons and tons of concrete blocks, old automobiles, bulldozers, steam engines, worn out battleships, hurtling down upon the corner of the patio where I was standing. My pet toy English pug barked, ran over to the wall where the lightning had disappeared and barked furiously.

... I do not remember that it had any odor. And I was not aware that it made any noise until I heard meat sizzling on the stove. My unconscious mind nudged me, "Hear that? That's how the lightning sounded".

... I clearly saw the lightning even as the thunder crashed.

Later letters, one thanking the authors for their visit and another written to Dr. E. J. Workman\* at their suggestion, contained a few additional details.

If you take a long narrow strip of paper . . . and crumple the end a little, you will notice folds going into wrinkles, and the wrinkles smooth out; you see the strip is wider. That is the exact shape; no ball about it. The folds were bright shiny patent leather black and the rest a brilliant-dazzling electric blue.

... I called that the head arbitrarily because it led the way. It was in a hurry but you could not call it a flash and I think from the time the head came into view and the time the tail disappeared was three or four seconds. And the length—what I saw at one time—I guessed as 25 feet . . .

... It was stiff, it did not undulate or glitter and it looked flat—about  $1\frac{1}{2}$  in. to 2 in. thick. It was not transparent for I could not see the pedestal of the birdbath through it, but I could see the bowl above it. . . . It was about 6 inches above the grass and neither the grass nor the bushes through which it passed or the lauwal ferns where it disappeared were even singed. [My dog] sat at my feet watching it. She never moved until the thunder broke over our heads. Then she ran to . . . where the "head" disappeared and barked furiously. I am not sure that it went into the ground or whether part of it did and the rest just lay down and died.

... There was absolutely but the one clap of thunder and it was directly over my head and it came while I was still watching the tail . . . disappearing through the hibiscus bush. It was a brilliant electric blue—no red about it.

Several days after the receipt of her first letter, the authors telephoned Mrs. M. and arranged to visit her at her home. There they found a lady made frail by her 92 years but undiminished in mind and spirit. As she retold the incident which had brought them there, her clarity of expression and coherence of thought permitted no lingering doubt of her competence as an observer. The arrangement of the house, garden, and furniture were exactly as she had described them. It was evident that she had put into her letter everything that had seemed relevant, and could add little to it. She compared the appearance of the lightning with that of a "thick plank"

much wider than the head. It was "dazzling", but didn't hurt her eyes or leave an after-image.

A number of measurements were made by the authors. The distance from the hedge where the "head" had first appeared to the point where it had vanished among the ferns was 21 ft. The total length visible to Mrs. M. at one time may thus have been about 15 ft. The chair at whose side she had been standing was  $12\frac{1}{2}$  ft. from the birdbath in the garden, and her eye was about 58 in. above the ground. The height of the birdbath from the grass on which it stood to the base of the bowl was 31 in. and to the top of the bowl 35 in.

Mrs. M. again described the "lightning" as having been midway between herself and the birdbath, and was quite definite in recalling that while it had entirely concealed the base and pedestal, it had left the bowl clearly visible above it. This would have given it a width of approximately 15 in.

A most careful scrutiny of the grounds, and in particular of the place near the hedge where the lightning first appeared, of the ferns through which it had passed, and of the spot where it had vanished revealed not the slightest trace of scorching or residue or of anything else at all out of the way.

### 3. METEOROLOGICAL CONDITIONS

Although the meteorological conditions at the time this incident occurred in no way "explain" it, they are included here for the sake of completeness.

The nearest Weather Bureau station to the scene is that at Honolulu International Airport, about 10 mi. to the northwest.<sup>1</sup> Between 1506 and 1612 LST on the 22d, it was recording light rain showers. The 1655 LST observation reported a thunderstorm (the first of the day) to the southeast. The "remarks" column carries the following notation: Thunderstorm beginning 1652 to the southeast; occasional lightning cloud-to-ground to the southeast; heavy rain showers, east to southeast. (The actual entry read, "TB 52 SE OCNL LTG CG SE RW+ E-SE".) At 1710 LST, a thunderstorm (almost certainly the same one) was still being observed to the southeast, with rain showers of unknown intensity from northwest to northeast to southeast (TSE MOVG SE RWU NW-NE-SE). The 1731 LST observation noted that the thunderstorm had ended at 1713. No others were observed that day. Winds at the time were east-northeast, 10 to 11 kt.

The close correspondence in time, location, and nature of the official observation to that described by Mrs. M. is strikingly corroborative.

The radiosonde ascent nearest in time and place was that made at 1400 LST (23 0000 GMT) at Lihue, Kauai, nearly 100 mi. northwest of Mrs. M.'s home. It is quite undistinguished: a moist layer to 720 mb. topped by a small temperature inversion ( $1^{\circ}$  C., to 710 mb.), and with much drier air above. Synoptically, the Hawaiian

\*Presently Director, Cloud Physics Laboratory, University of Hawaii.

Islands lay within the diffuse pressure gradients of a col formed by high pressure centers to the northwest and, much more distantly, to the northeast. Within the col some suggestion of a convergence line or of an old cold front remained. From midnight until about 0800 LST on the 22d, surface winds at the airport station were light and northerly—possibly a land breeze. By 0900, however, they had been abruptly replaced by southwesterly winds of 9, and—by 1505—of 11 to 15 kt., and at 1535 these in turn gave way to the east-northeasterly flow which prevailed at the time the thunderstorm occurred.

### 4. CONCLUDING REMARK

The authors have made no attempt to explain or to label Mrs. M.'s curious experience. Their intention has been solely to authenticate it and then to bring it to the attention of those better able to interpret it and to assess its possible contribution to our understanding of atmospheric electrical phenomena.

#### REFERENCE

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[Received January 3, 1966]

ADMIRALTY I31/119

601 - 0022

Intelligence Office,

Plymouth Garrison,

Cumberland Block, Devonport,

I/O. 367.

4th December 1915.

REPORT ON THE DARTMOOR FLOATING (or BALLOON) LIGHT.

On or about June 23th last, accompanied by Lieutenant the Hon. C. Brownlow, R.N.V.R., of the Naval Intelligence Department, I interviewed Miss Cecilia Peel Yates, staying at Dolbeare Cottage, near Ashburton. Although prone to be garrulous and irrelevant, she is a well-educated gentlewoman of considerable intelligence, has travelled widely, and talked with a knowledge of the world that entitled her statements to be received with respect.

She informed us that a few mornings previously, just before dawn, having been awakened by the barking of dogs, she saw from her bedroom window a bright light in the sky, bearing N., and apparently suspended a short distance above the earth. It was too large and bright for a planet, and, as she watched, it swung away to the N.E., and disappeared. Haytor is due North of Ashburton and 4 miles distant as the crow flies.

Although we had entirely failed to shake the lady's evidence by cross-examination, we deemed her story so wildly improbable that we excluded it from our official report. But shortly afterwards reports of a similar

phenomenon



phenomenon were received from the neighbourhood of Hexworthy Mine, which is 5 miles to the N.W., across Dartmoor.

On July 12th, Lieutenant Brownlow and I proceeded to Sherril, near Hexworthy, and interviewed Mrs. Cave-Penny and her daughter, from whom the reports emanated. Their house, an isolated farm on the moor, commands a clear view of the mine, which is  $2\frac{1}{2}$  miles distant. They stated that on several occasions they had watched a bright white light rise from a point a few hundred yards to the Eastward of the mine, swing across the valley to about the same distance West of it, and disappear. The light sometimes rose above the skyline, at others it showed against the boom of Down Ridge, on which the mine is situated. On each occasion it rose from the same spot and followed the same course.

Mrs. Cave-Penny is a rather excitable, irresponsible Irish lady, but we had no reason to doubt her evidence in the main, and her daughter's testimony (which fully corroborated that of her mother) was most clear and definite.

This floating light against Down Ridge has been reported from the Hexworthy district on several occasions since, the last being a few nights ago.

About the middle of August this peculiar light was reported from two other points, viz., a meadow at Dartington Manor, about two miles from Totnes, and a paddock belonging to Barton Pines, a large country house on high land overlooking Paignton. Dartington Manor is the home of the Champernownes: Barton Pines is owned by a Mr. William Whitley, formerly of the Life Guards.

On more than

On more than one occasion Mrs. Whitley had reported that she and other witnesses had seen the floating light immediately above the belt of fir trees which screens the paddock from the garden and house. Brownlow, the Detective Police and I have separately interviewed Mrs. Whitley on various occasions, and we have all found her perfectly consistent in her story. For some time Mr. Whitley was sceptical, but, having seen it himself, he is now as convinced of its existence as his wife. The paddock commands an extensive view of Tor Bay in one direction and a long chain of the Dartmoor Tors in the other. The Dartington "floating light" was reported by Mr. Falkland Ricketts of Gatcombe Manor, who had also seen the Barton Pines occurrence. After several further reports from this witness, I obtained the sanction of the G.O.C., to watch one of the three points enumerated until I saw the light myself. I selected the Dartington Point, and, accompanied by Mr. Brownlow, began to watch from a position immediately opposite near the main Totnes-Newton Abbot road. On the third night we both saw the phenomenon precisely as it had been described at Hexworthy and Barton Pines.

About 9.30 that night (September 4th) we observed a bright white light, considerably larger in appearance than a planet, steadily ascend from the meadow to an approximate height of 50 or 60 feet. It then swung for a hundred yards or so to the left, and suddenly vanished. Its course was clearly visible against the dark background of wood and hill, though, the night being dark, it was not easy to determine

whether

whether it was a little above or beneath the skyline. We were within a mile of the light and both saw its ascension and transit distinctly. The Dart flows between Dartington and our post of observation, and, as at this point in its course the river is unbridged and unfordable, it was impossible to reach the meadow from which the light arose.

I have watched Down Ridge, Dartington Manor, and Barton Pines by night on several occasions before and since September 4th, but that date is the only time I personally have seen this "floating light" which has so often been reported by other and reliable witnesses.

It is to be observed that a ruler-edge laid upon the map will pass through the three indicated points, and that the suspect Duckfast Abbey (which harbours some 40 un-naturalized Germans of Military age) lies on the centre of the line. The line runs from the direction of Princetown to the Coast at Paignton.

These lights, which are presumably lifted by captive balloons, are of an entirely different character from that of the stray fire balloon recently reported over Ashburton.

It is suggested that the former may be employed to lift an aerial for wireless purposes. In any case it is difficult to find a normal cause for the credibly attested and oft recurring phenomenon, unless it be some form of illicit signalling. The proposed methods of detecting it I have dealt with in my former report on "Suspects and alleged Illicit Signalling on N.E. Dartmoor".

(Sgd) W. P. DRURY.

Lieut. Colonel, R.M.L.I.  
Intelligence Officer.





ADMIRALTY 131/119

Telephone No.—"Central 90."  
(Military Exchange).

CONFIDENTIAL.

INTELLIGENCE OFFICE,  
PLYMOUTH GARRISON,  
CUMBERLAND BLOCK,  
DEVONPORT.  
1st April, 1916.

ABNORMAL LIGHTS ON DARTMOOR.

With a view to detecting the origin of the above (and especially of the "floating light") I have recently submitted a scheme, which has been approved by the G.O.C., for rounding up one of the most active areas of the Moor at night. This scheme can only be carried into effect under certain conditions, for which I am waiting. Meanwhile, and as an essential preliminary measure, I am awaiting the sanction of the War Office to my application to have certain correspondence in that area secretly examined. The application which was made a month ago, has been recently renewed, but no reply has so far been received.

P. Drury

LT. COLONEL,  
GARRISON INTELLIGENCE OFFICER.

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### "SEEING THE LIGHTS"

Hilary Evans' "Seeing the Lights" (October-November 1985 FATE) reminds me of something I experienced more than 50 years ago.

In September 1932 I boarded an overnight sleeper at Glendale, Calif., on my way to the University of Nevada. Too keyed up to sleep by the adventure of leaving home for the first time, I lay propped up on pillows in my lower berth with the lights out and the shades up, watching what little there was to see in the nighttime landscape.

As we began the long haul across the Mojave Desert, I could see for miles across the flat, mostly uninhabited and unlighted land toward a distant range of mountains to the northeast where a tremendous lightning display was taking place. A jagged streak would descend and at the point where it seemed to strike the mountains (beyond which lay Death Valley), it would bounce off at a sharp angle and form a huge glowing ball. The ball would dissolve but immediately another bolt would hit the ground and another ball would fly off. These pyrotechnics went on for perhaps an hour or more. I don't remember being particularly surprised by the lightning effects although I have never seen anything like it before or since.

Now I wonder: Was it some kind of optical effect? Was the lightning hitting a power line and causing transformers to explode? Or was something drawing energy from the electrical storm and making itself visible in a kind of rhythmic, playful dance? The lightning flashed rapidly but the bouncing balls were leisurely, almost in slow motion, and seemed to hover a few hundred feet above the mountains before they disappeared. — *Janet Newton Batchler, Denver, Colo.*



601 0024

# *Tales* OF THE *Big Bend*

by ELTON MILES



*Texas A&M University Press*  
COLLEGE STATION AND LONDON

11.

## *The Marfa Lights*

THE most prolific, on-going legend hatchery in the United States must be the abandoned Marfa airport on Mitchell Flat, the playground of the Marfa Lights.

A favorite pastime in the Big Bend is to drive out at night to see this unexplained phenomenon. When you reach the entrance of the old airport, you park on the shoulder and look south toward the Chinati Mountains about fifty miles away. Against the mountain walls you usually will see one or more of the lights—white, green, or blue; appearing, disappearing; moving diagonally or horizontally. I have seen them myself. Sometimes they seem to approach quite near, as reported by my colleague Mrs. Roy Smith and by many other viewers. On a clear night she and her husband stopped and saw several of the lights near the ground, moving about. The lights would disappear in one spot and reappear in another. Then they seemed to move toward the car and linger near the hood. Getting the creeps by this time, Roy started the engine and headed for home.

During the sixty-odd years Hallie Stillwell has lived in the Big Bend, she has seen such lights many times and in many places. "It looks like a big headlight," she said. "It just kind of flickers along the mountain. They might cover a section or two of land. They light up and run across the mountain, kind of like a grass fire."

In the 1930s Salomón Ramos, then a cowboy working near

Paisano Peak east of Marfa, saw them flickering on the western horizon. In 1927 when Ferdinand Weber observed them in southeastern Presidio County, he was told they were spirits of the Chisos Apaches. In the summer of 1919 cowboys rode all over the mountains to find the source of these lights, without success. About 1900 Roy Stillwell watched them play around the Dead Horse Mountains, in what is now the Big Bend National Park. The earliest reported sighting in 1883, was made by settler Robert Ellison and his wife during their second night in the Big Bend. According to their daughter, Mrs. Lee Plumbley of Marfa, "My daddy said they unloaded their cattle at what is now Alpine and they started driving them toward Marfa. When they came through Paisano Pass and got onto the flats where you can see for a long distance, they saw the light. He thought it was an Apache campfire, and they weren't too friendly in those times. He finally began to realize it wasn't a homeplace or a campfire. Others in the country before him told him they'd always seen it."

Since the folk mind abhors a missing link in the chain of cause and effect, legend is spawned, sometimes disguised as rumor. Mrs. Marie Roberts of Marfa said, "In 1943 during World War II, while working at the Marfa Army Airbase, I overheard two young pilots talking about the strange lights to the south. The boys believed that it was a light used to guide German supply planes in. They were sure that the Germans had a large, well-hidden camp and were getting ready to invade the United States by way of Mexico."

Mrs. Roberts' mother, Mrs. Eva Kerr Jones, said she heard the same tale around 1918: during World War I the light guided German cavalry and pack mules in. Then *her* mother, Mrs. Mary E. Kerr, said that about 1914 the light was said to be Pancho Villa moving in supplies and men, preparing for an all-out attack on the United States. Let it be added that toward the end of World War II it was told that German prisoners at the army airbase were released when Hitler was killed, they headed for Mexico and were never heard from again, and the

light is the ghost of Adolf Hitler with a lantern, hunting for his soldiers.

The myth-making goes on, aided especially by students at Sul Ross State University and at the high schools in Marfa and Alpine. Boys like to drive their girls out to the old airbase and get as much scare effect out of the lights as possible. It is all in fun, and they sometimes take along a bottle of cheap wine or a wastebasket full of iced beer. At about third hand, Joan Davis, a Sul Ross student, heard in 1970 that a girl and her date, having gone out to see the lights, were chased by them and knocked down. They hastened home to their dormitories, and next day both discovered they were "sunburned" by the lights. Another student, Buck Reynolds, to intrigue his dates, would start flashing the headlights of his car about a mile before he reached the old airport, as though to call up the lights. When they appeared, he would tell his girl how the lights were "orles" of energy from another planet to monitor the "goings-on" on earth. He would also tell them how his engine once was cut off by the lights. "He would relate these theories," said his interviewer, "with such seeming sincerity that some of his more gullible listeners would be lulled into a nervous shock."

It is said that the airbase was closed because of the deadly lights. During World War II, when the airbase served to train pilots, sometimes the lights would line up like runway lights, and several inexperienced student pilots were killed when these fake guides led them straight into the face of the Chinati Mountain cliffs. That is why the army abandoned the airbase after World War II. Airport officials sent up a helicopter to locate the lights, but they could not be seen from the helicopter. When the men landed where a light was supposed to be, the copter promptly exploded, leaving no trace of the men.

Because of these dubious disasters the U.S. Army seriously set about trying to learn the nature of the Marfa Lights. The most common story, which has several outcomes, tells

how during World War II the military organized itself to locate their source. Several jeeps and planes were equipped with intercommunication devices, and the search was on. One jeep was designated to drive directly into a Marfa Light (in the stories the number of men in the jeep is usually given as either two or four). Reports of the outcome of this venture vary:

(1) The jeep reported reaching the light, then contact went dead. The jeep was located, but of its passengers nothing was found except one sock. It was found at a place where the rocks drew heat from the sun, radiated it as light at night, and this burned up the men.

(2) When told they were right on the light, two of the jeep passengers said they saw no light. Then communications broke off. Next day the men were found thrown from the jeep and burned to death. The equipment in the jeep was burned beyond repair.

(3) Two scientists, assigned to help the army, were in the jeep, which was found somewhat melted. The scientists were never found.

An alternate of the version says that two scientists in two trucks were found beside their burning trucks in a state of hysterical shock; both men were idiots from that day on. One person interviewed said, "They sent the two men to a sanitarium in Big Spring. They are supposed to be there up to this date." That was in 1973.

It just might be that the kernel from which all the burned-up jeep stories have sprung has its origin in what C. W. Davis of McCamey told Charles Nichols in 1972. He said, "One of the people involved was a personal friend of mine. He told me that him and two of his buddies were sort of drunk and decided to look for the lights. They stole a jeep, which they wrecked. They were afraid of getting caught, so they set fire to the jeep and sneaked back to the airbase."

Then again, here is what retired postal worker James Mecklin told Gary Painter of Marfa in 1973.

I first came to this country in 1928 to work on a newspaper. As soon as we got here we started hearing about the Marfa Lights. We saw the lights several times and spent a week trying to find them. Later on when World War II came along I was in charge of the post office at the airbase. One morning I was talking to a Sergeant Robarbo was his name, he was a mail orderly, and he was from New York and all he knew was pavement and he thought these antelope were funny looking cows, things like that you know. Anyway we got to talking about this light, and, boy, that intrigued him a whole lot and some way or another he got to talking to his squadron commander, a Major Davidson, and he was interested in the stars, astronomy. He was an amateur astronomer. So, boy, he comes hot foot'n it down there and wants me to tell him about these lights.

About a week and he was already hot up about it. He'd been out there every night seeing it, and there'd been some talk and he got to listening and they wondered if it was cars or something over there or what.

But me telling him about it, that was what impressed him there was maybe something strange. He investigated and got his maps out and looked at this highway. They had maps of all this country drawn up by the base, and he couldn't locate any ranch houses or anything that would make this light. So he thought maybe, well, there is something out there.

So he asked me, said "Do you think that we could follow that thing by an airplane?"

So I said, "Well I don't know if you could follow it by an airplane or not."

He said, "We got a lot of 'em out here."

They were flying these old twin-engine Cessnas made out of plywood, mostly to train in school there. Those twin-engines, they were death traps.

He said, "Well, I can get hold of some planes." Says, "You know, I'm going to check this thing out." Says, "I'm tired of all this stuff I've heard about this."

Meanwhile he talked to other people in Marfa and got the same ideas about the light as he got from me and heard a bunch of stories about it and said, "We're going to put an end to all this. We're going to check it out."

I wasn't in on this, but they told me that for three nights he



set up teams out there of four planes, one behind the other, and that they would follow that light. When they took off they could see it come and go. After they got to where they thought it was, it would disappear. Then maybe it would appear way down ahead of them, and pretty soon it was ending up in Mexico, where they couldn't go. It moved ahead of them all the time. It would disappear on them, then pick up and go.

This man finally gave up on it; this Major Davidson, and he was mystified. The last time I talked to him before he left, he said, "Mecklin, I'm leaving you and Marfa and your light here. I'd sure like to have found out what it was but couldn't do it."

A man who actually flew in hope of finding the nature of the light was Fritz Kahl of Marfa. He runs a flying service today at the old airbase and some years ago organized the International Soaring Contest there. He told his interviewer, "What I have to tell you, I could say in five minutes. I chased them in an airplane, not once but several times, and this was in 1943 and early 1944. My God, there I was, a World War II aviator. Hell, I was twenty-one years old and didn't have any sense, flying airplanes at night out in the hills, right down on the ground. You got to be young. You got to be crazy. But we tried it. Only thing is, you know, you leave the airbase and you get out on that Presidio highway a ways, and you run into the hills right quick." Fritz Kahl could find nothing.

Stories that grew out of these airborne quests claimed that they dropped sacks of flour to mark the location of the lights, then next day could find nothing but flour. Sometimes not even flour.

In general, there are two or three sets of legends about the Marfa Lights, and the nature of each set depends upon which generation of the folk it serves, the older or the younger.

The older folk might be served well by what Mrs. W. T. Giddens, who was raised in the Chinatis, told "Off the Beaten Trail" columnist Ed Syers. Of a tradition in her family, she

said, "I've seen the Ghost Lights all my life and can't remember their causing any harm other than fright. They like to follow you out in the pasture at night, seem to be drawn to people and stock, and animals don't seem to fear them at all." Then Mrs. Giddens told about her father, lost at night in a blizzard miles from home. He thought he would freeze to death when he saw the Marfa Lights flashing almost on him. They "said" to him (he could never explain how) that he was three miles south of Chinati Peak, off his trail, heading in the wrong direction. They "told" him he would die if he didn't follow the lights, which he did. They led him to a small cave, and in that shelter he lived through the night, the largest of lights staying close beside him. Somehow he was "told" they were spirits from long before that wanted to save him, and that he could sleep now without freezing to death. With morning both the lights and the blizzard were gone. And as anticipated, he saw that he was off the trail, three miles south of Chinati. Then getting home was no chore at all.

This family tradition spawned further, more simplified legends. A cowboy was lost in a blizzard at night at the foot of the Chinatis. A ghost light appeared and at first he tried to get away from it, but it followed him. Changing his mind, he followed the light for hours, and it made him feel comfortable somehow. When the light suddenly disappeared, the cowboy was happy to find that it had led him to one of the Presidio County Airport gates. Then he followed the road home to Marfa.

The Marfa Lights are friendly in other tales also. They are the ghost of a rancher who once owned the land, and they always shine brighter on his birthday. Another tradition says that early settlers used the Marfa Lights as a guide across Mitchell Flat to avoid encounter with hostile Indians.

Some of the older legends tell of Indians, a subject frequently present in American myth made early in this century. Several of these are pseudo Indian legends, a few having to

do with the stars. For instance, the lights are temporary homes of fallen stars, and the Great Spirit stores his thunderbolts with them. As the fire in the stars goes out, they die, and as they have served the Great Spirit well as sentries, he allows them to choose their final resting place. Some of the stars are Apache warriors who fought bravely against the white man, and they have been granted their request to come back to the land they love.

Some say the lights are ghosts of Indians. Once Indians were camped on the flat, on their way to plunder in Mexico. Soldiers from Fort Davis attacked and annihilated most of them. Seeking vengeance, survivors stole lanterns from the settlers and moved around at night, hoping to lure the soldiers into a trap. Their ghosts wave their deceptive lanterns to this day. Another version says that all these Indians were killed in camp, except their scout, and he still wanders with his Ghost Light trying to find his people. In another tale the Indians were not killed but captured when their chief was absent, and they were carted off to a reservation in Florida. It is their chief who continues the ghostly search. Or, according to another tale, it was the chief that was killed, and the tribesmen are looking for him.

Spaniards get the blame for rounding up Indians into slavery and then cutting off the chief's head. To their astonishment, the chief picked up his head and walked away with a lantern to find his tribesmen. He got other chiefs to join him, and all those lights are the Indian chiefs searching for their captive fellows.

Some of these stories about the ghost of an Indian chief are tied in with the once very real Chisos Apache chief Alsate. History says that he and his tribe were betrayed at San Carlos, Mexico, and enslaved; legend says that after he escaped, he returned to the Chisos to live with his wife. Alternate legend holds that he was camped with his Apaches in the Chinati Mountains and that the Spaniards were determined to massacre the lot. They invited Alsate and his tribe to their

camp to talk peace, only to ambush them. Alsate escaped to the Chinatis, and his spirit is still lighting fires to summon his dead warriors back to his camp.

Inevitably pseudo Indian legends turn to the love between a handsome Brave and a beautiful Indian Princess. A story apparently designed to entertain children is one Betty Burns said she was told by her mother. An Indian Princess and a Brave were in love. Each evening they brought separate herds of sheep down from the Chinatis. Once while she was waiting for him, she saw a flash of light. When he did not join her, she searched for him but found only his belt around the neck of one of his sheep. Where the light had appeared, the ground was disturbed. Though she had many suitors, she vowed never to marry but continued to search for her beloved. Finally only one suitor was left. Every week on the day her Brave disappeared, the light would appear, and one day, when she approached too close, she was blinded by the light. Then the tribe moved away, leaving only the Princess and her lone suitor. Though blind, she went again to find her lover. Her suitor found her dead next day at the bottom of a cliff. Her loyal suitor lived on at that place and believed that the light dancing around was the spirit of the blind Princess still searching for her handsome Brave.

Alsate gets into one story of this kind, according to which he fell in love with an Indian girl and a jealous suitor plotted to kill him. When the jealous suitor followed Alsate and the girl to their trysting place, he accidentally killed the girl instead of Alsate. Then he stole her body and hid it in the mountains. The lights, then, are Alsate and the girl searching for each other.

In another account a Brave had gone for water when enemy Indians killed all the tribe except the girl he loved, and she had disappeared. With the Marfa Lights, he is still looking for his sweetheart. A tangent story says that the light is an Indian searching for his slain sweetheart, and that he turns off the light when he thinks someone is watching him.



A love interest also is the central element in the story of the Indian chief whose daughter ran away to Mexico with a man of whom he did not approve. The chief is still burning these lights so that his daughter can find her way home. Another Indian chief went looking for the girl he loved and could not find her. As the tale teller put it, "He set himself on fire because he was so upset." And that is an explanation of the Marfa Lights.

There are many stories about Indians using the lights to hunt for somebody or something. A chief awoke one morning to find that every person in his tribe had vanished; to find his lost tribe his spirit is still wandering with a lantern. A chief was killed, and it is his son searching for his grave with a light. An Indian chief was killed by white men and buried in a manner unholy to the Indians; he wanders about with a ghost lantern searching for his soul so that he can enter the Happy Hunting Ground.

One pseudo Indian story connects the lights with buried treasure. Gold is said to be hidden in a sacred Indian burial ground, which was not to be desecrated. One night several drunk Indians went in to find the gold and never returned. The Marfa Lights are those Indians trying to find their way out.

Or the lights are forms taken by an Indian, his wife, and their descendants. When he died, he became a bright light, then so did his wife, and then his children after them. When visitors intrude on their land the lights are this Indian family performing a war-dance.

A story with a particular Mexican-American and Catholic bent says that once two warring tribes fought a battle in which nearly all were killed. The Marfa Lights are the spirits of these Indians walking the earth in penance.

Another tale says that an Indian and his wife rode into Marfa for supplies. While the Indian was at the store, a white man tried to rape the Indian woman and she shot him dead. When the Indian saw what had happened, to protect his wife he took the gun in his own hand and told her to run and hide.

He was caught, did not deny the murder charge, and was hanged on the spot. Every night his wife—now a ghost—burns a fire to signal him to return.

Similar is a more recent story about a woman who got sick when she was traveling with her husband in the mountains. The husband went to town to bring a doctor but, nobody knows why, never returned. The sick lady, now presumably dead, keeps shining a light so he can find her.

Sometimes the stories borrow from the Dolores legend. In the 1800s a Ranger and his wife lived in the hills between Marfa and Alpine. Being a lawman, he usually was away from home at night. His wife had a lover, and she would signal her friend that the coast was clear by climbing a mountain and starting a fire. The lover also would start a fire, to let her know he was on his way to join her. After a year the woman's lover did not respond one night, and for about two weeks she saw no answering blaze. Then she learned that her husband had killed her amorous friend. After that, in her lover's honor, she would go up the mountain every night and start her fire. Her ghost is still making the Marfa Lights.

The story of an Indian tribe in the Chinatis that was struck by famine combines both the Dolores and Llorona motifs (La Llorona is the ghost that wanders and wails in penance for drowning her babies). When the famine was at its worst, an Indian woman gave birth to twins. Worried about their survival, she summoned the devil, pleaded for his help, and agreed to turn her children over to him when they were older. According to contract, the devil provided them always with food, good health, shelter, and clothing. Now the lights are this old Indian woman "searching and signaling for her twins to come back to her from the devil." So it is told by Mrs. Conaly Brooks, who grew up in Marfa.

A Llorona type also figures in what Jesús Jacquez told Ysrael Valencia had happened to him. Jesús was a trapper in the Marfa and Chinati area. When returning at night from working their traps, he and his fellow trappers would see



lights flashing against the cliffs. "Then we would see a woman up ahead of us," he said, "signaling for us to follow her into the mountains, where the lights had been flashing. The first time we saw her, we thought she needed help. We tried to call her, but she always started walking back and would wave for us to follow her. Of course no one had the nerve to do that. Every time we made those trapping trips, we always saw the same lights and the same woman." Doing a little myth-patching of his own, Valencia said maybe she was the ghost of an Indian woman trying to get help for those Indians wounded in the Mexican ambush.

Some of the older stories relate the lights to rustlers, outlaws, and lawmen. In pioneer days an outlaw killed a woman, who was the sheriff's wife. The sheriff and a posse went hunting for the murderer, and when they reached the mountains, the food ran out. The posse gave up and went home, but the sheriff stayed at it and is still wandering the Chinatis with his ghost light, seeking revenge. Then there was the cowboy who turned bad and was rustling cattle from his own boss' outfit. One night he saw the lights flashing about, took them to be a warning from God, and went straight from that day onward.

A Mexican-American father put the Marfa Lights to disciplinary use. When his son grew curious about the lights, he told the boy they were campfires of smugglers and rustlers who would kill him if he started snooping around.

Beau White of Marfa said his grandfather told him about a rancher who lived in the Davis Mountains in the 1850s and had become rather wealthy. One day while he was working on the range, Mexican bandits plundered and burned his house and barns. They raped the man's wife and twenty-year-old daughter, forcing his two younger sons to watch. Then the bandits bound the whole family with wet rawhide around their throats and wrists and left them to die. When the rancher returned, what he found drove him insane. Taking the lantern the Mexicans used to set fire to his property, he mounted his horse and went in pursuit. By this time the bandits had es-

caped to a place south of Marfa, had buried their loot on Mitchell Flat, and were headed for Mexico with plans to return and pick up their money. That night they hid out in a cave in the Chinatis and were sleeping when the rancher found them. The rancher built a fire at the cave entrance, and when the bandits came out, he shot them in the legs. Then he dragged them back into the cave and burned them alive. The rancher was never heard of again. The Marfa Lights are the Mexicans coming back in search of their hidden loot, and also the rancher looking for his money with the lantern.

Other pioneer stories abound. A wagon train was camped and destroyed by Indians. The Marfa Lights are the wagon train's ghost campfires. Once an old man went through west Texas cutting down all the trees. Near Marfa he chopped down a huge oak that fell on him and killed him. When he was found, his arms and legs were missing. The Marfa Lights are this old axeman's arms and legs seeking to rejoin his body.

They are also believed to be the ghosts of Shafter miners killed in a cave-in, the ghosts of buffalo, and the spirit of a negligent soldier who fell asleep while on guard at a fort in the Marfa area. Indians attacked and killed everybody, and the soldier's spirit cannot rest because he did not do his duty.

The Marfa Lights stories readily connect with tales of buried treasure, almost all of which are in Mexican-American oral tradition. To begin with, all treasures are guarded by mysterious lights. In the days of Spanish occupation, there was a gold mine near San Carlos, Mexico. The Spaniards, after forcing the Indians to carry gold to the Marfa area and dig, killed the Indians and buried them with the gold. Those Indian spirits rise and dance above the treasure, and they say, "If you can find the exact spot of the light, dig and you will find the gold."

A family tradition, said Mrs. Olga Parraz of Marfa, tells of an attempt by her husband's father, brother, and two uncles to find a treasure that was hidden by Indians to keep it from the Spaniards. In their car the men followed the light over rough

country, and when they got close, they started digging. Suddenly, out of nowhere, a very old car appeared beside them. Frightened, they ran back to their own car and gave up the treasure hunt forever.

In another tale two men were digging for gold and were about to dig up a treasure of Indian coins. Their blood ran cold when they heard a voice say, "I am the chief of the Indians and I am supposed to take care of the gold." This shows that the Marfa Lights are the souls of Indians protecting the gold so that nobody will take it.

Or the lights are reflections of gems in a treasure buried by a settler from the north. He wanted to marry an Indian girl, but her father, the chief, refused to unite her to a white man. When the settler offered countless priceless jewels in trade, however, the chief changed his mind. The white man went away to find enough gems, and when he returned the tribe had been wiped out by enemy Indians. He found his sweetheart's grave and buried the jewels with her. Hence, the Marfa Lights.

An Anglo-American treasure tale says that on one of the mountains is a red handprint, which can be seen but is impossible to reach. The hand points to a grove of cottonwood trees planted in the shape of a horseshoe, though this pattern is obliterated by later growth. The Indians hid their gold in the center of the horseshoe, and the Marfa Lights are Indian spirits guarding that gold.

They say, too, that an old prospector who had heard of gold deposits between Marfa and Alpine roamed Mitchell Flat and the Chinatis for seven years. He kept a map, and each night by the light of his campfire, he marked with a circle the place he had dug that day. The Marfa Lights are the ghosts of his many campfires.

Stories of more recent vintage move from the horse-and-buggy days to our motorized era. Besides being the ghosts of airmen killed in crashes at the old army airbase, the lights are reputed to be the ghosts of people killed in civilian planes. One

tale says a pilot was flying seven passengers to their home near Del Rio. In rough weather and almost out of gas, he decided to land on what looked like a lighted runway. What he saw was some sort of reflection off the mountainside, and he crashed into the cliff. Supposedly the lights emanate from that dead pilot trying to locate his seven passengers.

Sometimes they are responsible for fatal carwrecks: the lights shoot out in front of cars, blind the driver, and thus have caused several head-on collisions. Once some out-of-state travelers on Highway 90 saw what seemed to be reflectors on the side of the road. When their car was found, the interior was burned to ashes, and the only remains were nonflammable objects such as coins, keys, and jewelry. The outside of the car was unharmed.

Many stories involving cars and jeeps are the result of young people trying to impress each other with hair-raising tales. A boy and a girl were parked on the old airbase when they saw the lights. The girl began to scream with fright and the boy started the car. As they were leaving, the lights gained on them and the back of the car got hot. The back tires blew out, and the couple ran to safety. Next day the car was melted and still smoking hot. In another version of this same story, the girl died of shock. About a week later the boy went back to the scene of the accident and was never seen again.

Local high-school students went out in a jeep to see the lights and did not return. Searchers followed the tire tracks to where they abruptly stopped in an arroyo, but no further trace was ever found. The lights are those vanished young people signaling with ghost-jeep headlights, still hoping to be rescued.

Countless stories, usually very much alike, tell of young people going out to see the lights, being frightened by their approach, then hastening back home or to the dormitory. Some of the stories, always at least third or fourth hand, mention damage done by the lights. For example: a driver going west on Highway 90 was pursued by a light ten feet tall. At a



hundred miles per hour, he could not outrun it, but finally it disappeared. When he reached the bridge on the edge of Marfa, he found that the right back side of his car was burned black.

Always there have been a host of explanations that attribute natural causes to the Marfa Lights. One of the oldest is that they are sotol burned by cowboys to light their camp or to mark their trail.

With the younger generation, myth and science merge. Hundreds of years ago, Mitchell Flat was an ocean bed, and there was a lighthouse that is still signaling to ghost ships. Or, the ghosts of the sailors are out there signaling with the lights for the ships to pick them up.

Numerous "scientific" explanations have been advanced.

Mica

Gasses from the ground

Uranium

Mercury vapor lamps on ranches (strenuously denied by old-timers)

Bat guano in caves

Little volcanoes

Reflection of the stars and moon off rocks

Swamp gas

Phosphorus in the rocks

Phosphorus buried by phosphorus hunters

Chemicals left by the army at the old airport

Reflections from silver left in the abandoned Shafter mines

Coal deposits

Bones in the earth

Static electricity

Irregular "pockets" in the air that collect light, analogous to the telephoto lens

Reflections from a comet or meteor

Water flowing between two different ores, which gives off static electricity

Gas formed into large balls, which are somehow ignited

A negative charge, which if it ever met a positive charge would blow up the earth

Jack rabbits, whose fur glows because they have run through luminescent brush or have picked up glowworms.

The appeal of the unknown in these lights is strong enough to arouse sensible men to elaborate and expensive investigative action in their determination to conquer the mystery of the Marfa Lights and lay bare their natural disposition. This appeal is as strong as the tug of treasure maps handed down by dying prisoners to Coronado's Children, sending them into the wilderness with canteens and shovels and hearts full of yearning. Periodically at Sul Ross State University some young professor or student organizes a Marfa Light Investigation Expedition. Like the name of Fritz Kahl, their names live on in the legends: Paul Moran, Ring Huggins, Bill Juraschek, Ron Reynolds, and Don Witt. They load themselves with surveying equipment, they triangulate the lights, they level on them with high-powered binoculars, they walkie-talkie back and forth from planes and pick-ups, they coordinate observations with radio-equipped cars, and they continue to drop sacks of flour despite all the former flour-sack failures. In freezing cold and dark of early spring, 1975, an expedition set out. The Sul Ross *Skyline* reported, "Utilizing aircraft, survey instruments, multiband radio equipment, and about half a dozen search teams, the Marfa Ghost Light hunt began about 9:30 P.M. More than a hundred carloads of observers gathered between the two observation points, one at Paisano Pass and the other at the entrance to the old Presidio County Airport. Don Witt and Homer Hime, Alpine High School math instructor, were stationed at Paisano Pass, where Witt was to direct a team of observers in an airplane flown by Fritz Kahl. Hime was to keep in touch with ground crews stationed at various points on the flat plains between Paisano Pass and the Chinati



Mountains. But mixup in schedules sent the airplane aloft at 8:30 P.M. rather than the scheduled 9:30 P.M., and the search was called off a little after 11:00 P.M." With a prospector's unconquerable spirit, Witt said, "We'll begin the search at 9:30 tomorrow night and follow the same procedure."

Finally, there are the super-science and UFO stories of quite recent date, though some perhaps go back to World War II. One story says that between 1942 and 1945, the United States government built experiment stations throughout the Southwest to develop secret weapons. These were at Los Alamos, White Sands, and the Chinati Mountains Research Center, all secret and in remote desert areas. To work in these places, the government brought in the best of the world's scientists. The atomic bomb was developed at Los Alamos and missiles at White Sands, but at the Chinati Center, the most secret project of all proved a failure. An M.I.T. nuclear physicist, originally from Israel, was working on a nuclear laser fusion device. The project failed because it was years ahead of its time and created extremely dangerous risks. When a test in the field ran into trouble, the light generated by the laser interfered with the foreign fringes of matter. This caused the laser-fusion light to be locked or lost in space and time. A gigantic explosion followed, which destroyed the research center and left a seven-mile-wide scorch area. The accident was kept secret, but the government sent special investigative teams to study the strange flashes known as the Marfa Lights. After their investigation, they considered the matter closed and refused to give any information. This story, told by Ray Fuller of Marfa to Ellis Villalobos, was said to come from Ray's "Aunt Mary" of Marfa.

Some recent explanations enter into the realm of unidentified flying objects and the fourth dimension. In Indian times a flying saucer from outer space landed. The ship and its occupants were invisible except for their lights. Then again, on the old airbase there is an invisible barrier to that other dimension which keeps opening in spots, and that is what makes the

lights. People who have disappeared out there are still in limbo in the fourth dimension. It is said that a well-informed science writer once camped for many weeks to study the lights. He formed a theory, and "his recorded theory was so controversial that the government confiscated it."

Keeping pace with developments in our national culture, perhaps the most recent tale deals with a young Jesus Freak who went out to the old airbase with other students. Whenever he would say anything about Jesus, the lights would appear; when the subject changed, they would fade out.

A failure of the Marfa Lights to appear was described by Vickie Smith in 1972. She told her friends about the lights, the burned-up jeep, the disappearing passengers, the flour bombardments, the lost Indians. She threw in a few stories of her own about people who went to see the lights, after which only parts of their bodies were found, burned and scattered about. Then Vickie and her crowd jumped in the car, drove out, and parked on the highway by Mitchell Flat to see the mysterious performers.

No lights. They waited. Still no lights. Vickie's friends grumbled their disbelief.

As they were about to give up and go home, a huge school bus pulled off the highway and about thirty-five children swarmed out of it. They were yelling "I wanna see the Marfa Lights, man, where are they? 'Cause we're gonna find out what they are."

Their teacher, who was driving the bus, asked Vickie if this was the place they were supposed to see the Marfa Lights. He said he brought this busload of pupils from the Texas Panhandle on a tour to include the lights and then started telling scores of yarns he had heard about them. Riding back to Alpine, Vickie said to her friends, "I told you I wouldn't lie about a thing like that."

Named by Horace Bell are:

Charley Brown

Dave Brown

Chamberlain's editor, Roger Butterfield, discovered three names signed in Los Angeles to a deposition describing the massacre which they escaped:

Joseph A. Anderson

William Carr

Marcus L. Webster

It is probable that many if not all of these names are aliases, except for those of Samuel E. Chamberlain and Marcus Long Webster.

9.

#### *Bobcat Carter*

The chief source for this chapter is the paper by C. Ross Burns, "Bobcat Carter, Hermit of the Big Bend," prepared in 1972 when he was a student at Sul Ross State University, working under a David Witts Folklore Studies Grant. Burns' sources in turn consisted partly of the William A. Cooper, Jr., collection in Snyder, Texas, of such papers and snapshots Carter left behind in his tin shed when he died. These include the passport issued to Carter in Acuña, Mexico, which attests to the place and date of Carter's birth. Burns' other sources include many interviews with people who knew Carter or had heard about him. Burns also located the certificate of death of Henry Carter at the Brewster county clerk's office. I have referred also to Virginia Madison, *The Big Bend Country of Texas* (Albuquerque: University of New Mexico Press, 1955), p. 5, and to "The Border Trading Posts" in W. D. Smithers, *Nature's Pharmacy and the Curanderos; And, The Border Trading Posts*, Publications of the West Texas Historical and Scientific Society no. 18, Sul Ross State College Bulletin, vol. 41, no. 3 (September 1, 1961), pp. 41-55.

In *Return of the Virginian* (New York: Doubleday, 1974), H. Allen Smith based his former lightning rod salesman in part on Bobcat Carter.

10.

#### *The Lost Haystack Mine*

For stories about this lost mine, I am indebted to my good friends named in the article, Barton Warnock, Art Card, Bill Lane, Buddy Lane, Joe Brady, Walter Vick, Harold Page, and Mary Ella Vannoy.

11.

#### *The Marfa Lights*

Ferdinand Weber saw the lights in 1927 and told Riley Aiken about it for "More Chisos Ghosts," in Mody C. Boatright et al. (eds.), *Madstones and Twisters*, Publications of the Texas Folklore Society no. 28 (Dallas: Southern Methodist University Press, 1958), pp. 123-127. The 1883 and prior sightings are told by Marge Crumbaker in "The Unsolved Mystery of the Ghost Lights," in *Texas Tempo*, Sunday magazine in the *Houston Post*, January 7, 1968, copies of which are given away by the Alpine Chamber of Commerce. Mrs. Hallie Stillwell, Alpine justice of the peace, is quoted in Harry Wood, "Indian Ghost Light," *San Angelo Standard-Times*, January 14, 1965, p. B-1.

Folklorist Joe Graham lent me his collection of Marfa Lights stories collected and written up by his well-guided students. There are also several I collected myself that went into sorting out and arranging the main lines of legendry that go with the Marfa Lights. Individual informants are mentioned in the text.

Similiar mystery lights in other parts of the country were described in a *Saga* magazine article published in 1971. It named the lights near Sarasota, Texas, eleven others in the United States, and one each in South America and Canada.

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## CHAPTER IX.

The Corpse Candle—Its Peculiarities—The Woman of Caerau—Grasping a Corpse Candle—The Crwys Candle—Lights issuing from the Mouth—Jesting with the Canwyll Corph—The Candle at Pontfaen—The Three Candles at Golden Grove—Origin of Death-Portents in Wales—Degree of Belief prevalent at the Present Day—Origin of Spirits in General—The Supernatural—The Question of a Future Life.

### I.

PERHAPS the most picturesque of the several death-omens popular in Wales is the Canwyll Corph, or Corpse Candle. It is also, according to my observation, the most extensively believed in at the present day. Its details are varied and extremely interesting. The idea of a goblin in the form of a lighted tallow candle is ludicrous enough, at first sight; and indeed I know several learned Welsh gentlemen who venture to laugh at it; but the superstition grows more and more grim and less risible the better one becomes acquainted with it. It is worth noting here that the canwyll, or candle, is a more poetic thing among the Welsh—has a higher literary place, so to speak—than among English-speaking peoples. In the works of their ancient poets the candle is mentioned in passages where we should use the word light or lamp—as in this verse, which is attributed to Aneurin (sixth century):

•The best candle for man is prudence.

The candle is the favourite figure for mental guidance among the Welsh;<sup>1</sup> there is no book in

<sup>1</sup> Stephens, 'Lit. of the Kymry,' 287. (New Ed., 1876.)

the Welsh language so popular as a certain work of religious counsel by a former Vicar of Llandoverly, called 'The Candle of the Cymry.' The Corpse Candle is always and invariably a death-warning. It sometimes appears as a stately flambeau, stalking along unsupported, burning with a ghastly blue flame. Sometimes it is a plain tallow 'dip' in the hand of a ghost, and when the ghost is seen distinctly it is recognised as the ghost of some person yet living, who will now soon die. This, it will be noticed, is a variation upon the wraith, or Lledrith. Sometimes the goblin is a light which issues from a person's mouth or nostrils. According to the belief of some sections, the size of the candle indicates the age of the person who is about to die, being large when it is a full-grown person whose death is foretold, small when it is a child, still smaller when an infant. Where two candles together are seen, one of which is large and the other small, it is a mother and child who are to die. When the flame is white, the doomed person is a woman; when red, a man.

### II.

Among the accounts of the Corpse Candle which have come under my notice none are more interesting than those given me by a good dame whom I encountered at Caerau, near Cardiff. Caerau is a little village of perhaps one hundred souls, crouched at the foot of a steep hill on whose summit are the ancient earthworks of a Roman camp. On this summit also stands the parish church, distinctly visible from Cardiff streets, so ponderous is its square tower against the sky. To walk there is a pleasant stroll from the late Marquis of Bute's statue in the centre of the seaport town. I am thus particular merely for emphasis of the fact that this



superstition is not confined to remote and out-of-the-way districts. Caerau is rural, and its people are all poor people, perhaps; but its church is barely three miles from the heart of a busy seaport. In this church I met the voluble Welshwoman who gave me the accounts referred to. One was to this effect: One night her sister was lying very ill at the narrator's house, and she was alone with her children, her husband being in the lunatic asylum at Cardiff. She had just put the children to bed, and had set her candle on the floor preparatory to going to bed herself, when there came a 'swish' along the floor, like the rustling of grave-clothes, and the candle was blown out. The room, however, to her surprise, remained glowing with a feeble light as from a very small taper, and looking behind her she beheld 'old John Richards,' who had been dead ten years. He held a Corpse Candle in his hand, and he looked at her in a chill and steadfast manner which caused the blood to run cold in her veins. She turned and woke her eldest boy, and said to him, 'Don't you see old John Richards?' The boy asked 'Where?' rubbing his eyes. She pointed out the ghost, and the boy was so frightened at sight of it that he cried out 'O wi! O Dduw! I wish I may die!' The ghost then disappeared, the Corpse Candle in its hand; the candle on the floor burned again with a clear light, and the next day the sick sister died.

Another account ran somewhat thus: The narrator's mother-in-law was ill with a cancer of the breast. 'Jenny fach,' she said to the narrator one night, 'sleep by me—I feel afraid.' 'Hach!' said Jenny, thinking the old woman was foolishly nervous; but she stayed. As she was lying in bed by the side of her mother-in-law, she saw at the foot of the bed the faint flame of a Corpse Candle, which shed no

light at all about the room; the place remained as dark as it was before. She looked at it in a sort of stupor for a short time, and then raised herself slowly up in bed and reached out to see if she could grasp the candle. Her fingers touched it, but it immediately went out in a little shower of pale sparkles that fell downward. At that moment her mother-in-law uttered a groan, and expired.

'Do you know Thomas Mathews, sir?' she asked me; 'he lives at Crwys now, but he used to live here at Caerau.' 'Crwys?' I repeated, not at once comprehending. 'Oh, you must know Crwys, sir; it's just the other side of Cardiff, towards Newport.' 'Can you spell it for me?' The woman blushed. 'Deed, sir,' said she, 'I ought to be a scholar, but I've had so much trouble with my old man that I've quite forgot my spellin'.' However, the story of Thomas Mathews was to the effect that he saw a Corpse Candle come out of his father's mouth and go to his feet, and away a bit, then back again to the mouth, which it did not exactly enter, but blended as it were with the sick man's body. I asked if the candle was tallow at any point in its excursion, to which I was gravely answered that it was the spirit of tallow. The man died not long after, in the presence of my informant, who described the incident with a dramatic force and fervour peculiarly Celtic, concluding with the remark: 'Well, well, there's only one way to come into the world, but there's a many ways to go out of it.'

The light issuing from the mouth is a fancy frequently encountered. In the 'Liber Landavenis' it is mentioned that one day as St. Samson was celebrating the holy mysteries, St. Dubricius with

<sup>1</sup> It is pronounced Croo-iss.

two monks saw a stream of fire to proceed glittering from his mouth.<sup>1</sup> In old woodcuts, the souls of the dying are represented as issuing from the mouth in the form of small human figures; and the Tyrolese peasants still fancy the soul is seen coming out of the mouth of a dying man like a little white cloud.<sup>2</sup> From the mouth of a patient in a London hospital some time since the nurses observed issuing a pale bluish flame, and soon after the man died. The frightened nurses—not being acquainted with the corpse-candle theory of such things—imagined the torments of hell had already begun in the still living body. A scientific explanation of the phenomenon ascribed it to phosphuretted hydrogen, a result of incipient decomposition.<sup>3</sup>

### III.

It is ill jesting with the Corpse Candle. Persons who have endeavoured to stop it on its way have come severely to grief thereby. Many have been struck down where they stood, in punishment of their audacity, as in the case of William John, a blacksmith of Lanboydi. He was one night going home on horseback, when he saw a Corpse Candle, and his natural caution being at the moment somewhat overcome by potables, he resolved to go out of his way to obstruct its passage. As the candle drew near he saw a corpse upon a bier, the corpse of a woman he knew, and she held the candle between her forefingers, and dreadfully grinned at him. Then he was struck from his horse, and lay in the road a long time insensible, and was ill for weeks thereafter. Meantime, the woman whose

<sup>1</sup> 'Liber Landavensis,' 299.

<sup>2</sup> Tylor, 'Primitive Culture,' 391.

<sup>3</sup> 'Transactions Cardiff Nat. Soc.,' iv. 5.

spectral corpse he had seen, died and was buried, her funeral passing by that road.

A clergyman's son in Carmarthenshire, (subsequently himself a preacher,) who in his younger days was somewhat vicious, came home one night late from a debauch, and found the doors locked. Fearing to disturb the folk, and fearing also their reproaches and chidings for his staying out so late, (as many a young fellow has felt before and since,) he went to the man-servant, who slept in an out-room, as is sometimes the custom in Welsh rural districts. He could not awake the man-servant, but while standing over him, he saw a small light issue from the servant's nostrils, which soon became a Corpse Candle. He followed it out. It came to a foot-bridge which crossed a rivulet. Here the young man became inspired with the idea of trying an experiment with the Corpse Candle. He raised the end of the foot-bridge off the bank, and watched to see what the ghostly light would do. When it came to the rivulet it seemed to offer to go over, but hesitated, as if loth to cross except upon the bridge. So the young man put the bridge back in its place, and stayed to see how the candle would act. It came on the bridge, and as it passed the young man it struck him, as with a handkerchief. But though the blow was thus light and phantom-like, it doubled the young man up and left him a senseless heap on the ground, where he lay till morning, when he recovered and went home. It is needless to add that the servant died.

### IV.

Morris Griffith was once schoolmaster in the parish of Pontfaen, in Pembrokeshire, but subsequently became a Baptist preacher of the Gospel.

He tells this story: 'As I was coming from a place called Tre-Davydd, and was come to the top of the hill, I saw a great light down in the valley, which I wondered at; for I could not imagine what it meant. But it came to my mind that it was a light before a burying, though I never could believe before that there was such a thing. The light which I saw then was a very red light, and it stood still for about a quarter of an hour in the way which went towards Llanferch-Llawddog church. I made haste to the other side of the hill, that I might see it farther; and from thence I saw it go along to the churchyard, where it stood still for a little time and entered into the church. I remained waiting to see it come out, and it was not long before it came out, and went to a certain part of the churchyard, where it stood a little time, and then vanished out of my sight. A few days afterwards, being in school with the children about noon, I heard a great noise overhead, as if the top of the house was coming down. I ran out to see the garret, and there was nothing amiss. A few days afterwards, Mr. Higgon of Pontfaen's son died. When the carpenter came to fetch the boards to make the coffin, (which were in the garret,) he made exactly such a stir, in handling the boards in the garret, as was made before by some spirit, who foreknew the death that was soon to come to pass. In carrying the body to the grave, the burying stood where the light had stood for about a quarter of an hour, because there was some water crossing the way, and the people could not go over it without wetting their feet, therefore they were obliged to wait till those that had boots helped them over. The child was buried in that very spot of ground in the churchyard, where I saw the light stop after it came out

of the church. This is what I can boldly testify, having seen and heard what I relate—a thing which before I could not believe.'

Joshua Coslet, before mentioned in these pages, suddenly met a Corpse Candle as he was going through Heol Bwlch y Gwynt, (Windgap Lane) in Llandilo Fawr parish. It was a small light when near him, but increased as it went farther from him. He could easily see that there was some dark shadow passing along with the candle, and the shadow of a man carried 'it, holding it 'between his three forefingers over against his face.' He might perhaps have seen more, but he was afraid to look too earnestly upon it. Not long after, a burying passed through Heol Bwlch y Gwynt. Another time he saw the likeness of a candle carried in a skull. 'There is nothing unlikely or unreasonable in either of these representations,' says the Prophet Jones, their historian.

A Carmarthenshire tradition relates that one day, when the coach which runs between Llandilo and Carmarthen was passing by Golden Grove, the property of the Earl of Cawdor, three Corpse Candles were observed on the surface of the water gliding down the stream which runs near the road. All the passengers saw them. A few days after, some men were about crossing the river near there in a coracle, when one of them expressed his fear at venturing, as the river was flooded, and he remained behind. Thus the fatal number crossed the river—three—three Corpse Candles having foretold their fate; and all were drowned.

#### V.

Tradition ascribes the origin of all these death-portents to the efforts of St. David. This saint



appears to have been a great and good man, and a zealous Catholic, who, as a contemporary of the historical Arthur, is far enough back in the dim past to meet the views of romantic minds. And a prelate who by his prayers and presence could enable King Arthur to overthrow the Saxons in battle, or who by his pious learning could single-handed put down the Pelagian heresy in the Cardiganshire synod, was surely strong enough to invoke the Gwrach y Rhibyn, the Cyhyraeth, the Corpse Candle, and all the dreadful brood. This the legend relates he did by a special appeal to Heaven. Observing that the people in general were careless of the life to come, and could not be brought to mind it, and make preparation for it, St. David prayed that Heaven would give a sign of the immortality of the soul, and of a life to come, by a presage of death. Since that day, Wales, and particularly that part of Wales included in the bishopric of St. David, has had these phantoms. More materialistic minds consider these portents to be a remainder of those practices by which the persecuted Druids performed their rites and long kept up their religion in the land which Christianity had claimed: a similar origin, in fact, is here found for goblin omens as for fairies.

That these various portents are extensively believed in at the present day there cannot be a doubt; with regard to the most important of them, I am able to testify with the fullest freedom; I have heard regarding them story after story, from the lips of narrators whose sincerity was expressed vividly in face, tones, and behaviour. The excited eye, the paling cheek, the bated breath, the sinking voice, the intense and absorbed manner—familiar phenomena in every circle where ghost stories are told

—evidenced the perfect sincerity, at least, of the speakers.

It is unnecessary here to repeat, what I for my own part never forget, nor, I trust, does the reader, that Wales is no exception to the rest of the world in its credulity. That it is more picturesque is true, and it is also true that there is here an unusual amount of legend which has not hitherto found its way into books. Death-omens are common to all lands; even in America, there are tales of the banshee, imported from Ireland along with the sons of that soil. In one recent case which came under my notice the banshee belonged to a Cambridgeshire Englishman. This was at Evansville, Indiana, and the banshee had appeared before the deaths of five members of a family, the last of whom was the father. His name was Feast, and the circumstances attending the banshee's visits were gravely described in a local journal as a matter of news. Less distinguished death-portents are common enough in the United States. That the Cambrian portents are so picturesque and clearly defined must be considered strong testimony to the vivid imagination of the Welsh. Figures born of the fancy, as distinguished from creatures born of the flesh, prove their parentage by the vagueness of their outlines. The outlines of the Cyhyraeth and the Gwrach y Rhibyn sometimes run into and mingle with each other, and so do those of the Tolaeth and the Goblin Funeral; but the wonder is they are such distinct entities as they are.

#### VI.

To say that all the visible inhabitants of the mundane spirit-world are creatures of the disordered human liver, is perhaps a needless harshness of statement. The question of a future life

is not involved in this subject, nor raised by the best writers who are studying it; but, religious belief quite apart, it remains to be proved that spirits of a supernatural world have any share in the affairs of a world governed by natural law. A goblin which manifests itself to the human eye, it seems to me, becomes natural, by bowing before the natural laws which rule in optics. Yet believers in ghosts find no difficulty in this direction; the word 'supernatural' covers a multitude of sins. 'What is the supernatural?' asks Disraeli, in 'Lothair.' 'Can there be anything more miraculous than the existence of man and the world? anything more literally supernatural than the origin of things?'

Surely, in this life, nothing! The student who endeavours to govern his faith by the methods of science asks no more of any ghost that ever walked the earth, than that it will prove itself a reality. Man loves the marvellous. The marvels of science, however, do not melt away into thin air on close examination. They thrive under the severest tests, and grow more and more extraordinary the more they are tried. The spectro-scope and the radiometer are more wonderful than any 'supernatural' thing yet heard of. Transportation through the air in the arms of a spirit is a clear impossibility; but it is less wonderful than the every-day feats of electricity in our time, the bare conception of which would have filled Plato and Aristotle with awe.

The actual origin of the phantoms of the spirit-world is to be found in the lawless and luxuriant fancy of primeval man. The creatures of this fancy have been perpetuated throughout all time, unto our own day, by that passionate yearning in

men for continued life and love, which is ineradicable in our nature. Men will not, they can not, accept the doubt which plunges an eternal future into eternal darkness, and separates them for ever from the creatures of their love. Hence, when the remorseless fact of Death removes those creatures, they look, with a longing which is indescribably pathetic, into the Unknown where their beloved have gone, and strive to see them in their spirit-life.

On this verge the finite mind must pause; to question that life is to add a terrible burden to all human woe; it need not be questioned. But to question the power of anything in that life to manifest itself to man through natural law, is to do what science has a right to do. 'The living know that they shall die: but the dead know not any thing . . . neither have they any more a portion for ever in any thing that is done under the sun.'<sup>1</sup>

<sup>1</sup> 'Eccles.' ix., 5, 6.





## Earthquake Lightning

In some parts of the world, earthquakes are often accompanied by ball lightning, stroke lightning and sheet lightning<sup>1</sup>. The only causal connexion that seems possible is that the seismic strains of the earthquake somehow cause an electric field in the air, which in turn produces ball lightning<sup>2</sup> and stroke and sheet lightning. What is the mechanism of this "seismoelectric effect"?

It is suggested by Terada<sup>3</sup> that the streaming potential of subterranean capillary flow of water causes these electric fields. We estimate, however, that the seismic stresses necessary to produce breakdown fields by this mechanism are several orders of magnitude greater than exist during earthquakes. Electrostatic generation by dust, which is probably important in volcano lightning, is not significant in these earthquakes.

We propose that the piezoelectric effect in the Earth's crust causes the electric field.

The only significant piezoelectric constituent of the crust seems to be quartz. The mere presence of quartz is not sufficient; there must be the right kind of long range crystalline order or texture, for example, *m3*:*m* or *com*. The existence and magnitude of just such order are known from piezoelectric prospecting for quartz-bearing ores<sup>4-6</sup>. The range of order relevant to the seismoelectric effect is the wavelength of seismic waves ( $\approx 2$  km). Natural geological structures of this size may exhibit effective piezoelectric coefficients of the order of several per cent that of a cut single crystal quartz.

The long range order implied by these measurements is probably the result of the stress history shared by rocks in one tectonic unit<sup>7-9</sup>. At the relevant temperatures the *z* axes of quartz crystals tend to line up along the principal direction (eigenvector) of greatest stress. In one rock, for example, 50 per cent of the *z* axes are within 6.4 degrees of the principal stress direction<sup>10</sup>. There are several processes which can then order the *z* axes of the *z* ordered quartz grains. Secondary stresses may order the flats of quartz grains by mechanical action, thus ordering the *z* axes up to sense. An ordering of their senses occurs in the elimination of Dauphiné twinning by a shift in the direction of principal stress<sup>11</sup>.

In rock with a mean piezoelectric coefficient several per cent that of *x* cut single crystal quartz, and with typical seismic stress changes 30–300 bars, an earthquake makes an average electric field of 500–5,000 V cm<sup>-1</sup>. For distances of the order of half the seismic wavelength, the generated voltage is  $5 \times 10^4$  to  $5 \times 10^6$  V, which is comparable with the voltage responsible for lightning in storms. The impedances presented to this generator by a thin stratum of conductive soil or by conduction through the rock itself does not significantly load it at typical seismic frequencies.

For example, the North Idu peninsula earthquake of November 26, 1930, the best documented instance<sup>12,13</sup> of seismoelectricity (over fifteen hundred sightings), occurred in a region with widespread quartz rich lava flows. The geology and petrology of this area have been extensively treated by Kuno<sup>14-16</sup>; near Mt Hakone, the approximate centre of earthquake lightning, most of the lava flows contain between 15 and 30 per cent by weight of free silica, usually in the form of quartz. Some rocks contain up to 43 per cent free quartz. The rocks are usually crystalline and rarely glassy. In addition to these lava flows there are many regions with exposed dikes and plugs which contain large amounts of quartz and which have crystallized very slowly. One particular quartz diorite plug north of Mt Hakone forms a whole mountain, Yagura-dake, approximately 1 km across. This plug is only a few km north of the active Hakone fault along which there was extensive slippage during the earthquake of November 26, 1930. The whole North Idu region has been undergoing tectonic processes since the late Tertiary<sup>17</sup> with consequent strong regional shearing stresses. Thus we conclude that extensive long range ordering of quartz rich rocks has probably taken place in this region.

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These calculations make certain predictions possible. We expect that field measurements will show ground voltage differences in the North Idu region, during earthquakes, differences sometimes large enough to cause atmospheric electric discharges. It surprises us that while minute piezomagnetic fields of seismic origin have been explored<sup>18</sup>, no attention seems to have been paid to such gross piezoelectric fields.

There should also be very low frequency electromagnetic radiation from seismoelectric waves ranging from 10 Hz, the approximate upper frequency of seismic waves, to well below 1 Hz, and from transient stress changes at higher frequencies. The seismic waves provide an effective 1 km<sup>2</sup> antenna carrying a current of some 1 to 10 A with a spectral maximum near 1.5 Hz, the approximate maximum for seismic waves. The radiation takes place into the atmospheric cavity whose fundamental frequency is approximately 7 Hz. Electromagnetic radiation from 1.5 Hz seismic waves will be of low power ( $\ll 1$  W) but radiation from higher frequency transients will be much more intense.

There will also be electrical precursors to earthquakes resulting from changes in stress near earthquake foci. There is a tradition in Japan of predicting earthquakes, sometimes with great saving of life, from unusual clear sky lightning<sup>1</sup>. It may be possible to put this kind of prediction on a more systematic basis using more sensitive and quantitative electric measuring instruments than earthquake lightning.

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bol-0027

# "GHOST LIGHT IN JAPAN"

- Ghost Light Appeared and Disappeared Repeatedly!

By Shinichiro Namiki

About 7:30p.m. on July 31, 1982, Ms. Yoko Yarimizu (thirty eight - years old ), a housewife of Kirihata Yamagata City, Yamagata Prefecture, was surprised to find that there was something like a fire at the top of the Mt. Senohara (1,182 meters above the sea level) in the east when she went out to the backyard in order to dump garbage. She informed it to her family members. When her husband Kazumi (forty one years old) and other members of the family went outside, there was an orange luminous body, as large as a star of the first magnitude, near the crest line of the mountain although the "ghost light?" had disappeared. The luminous body disappeared in five seconds. Then, it appeared at a mountain side and disappeared. This phenomenon happened several times. And then, the two luminous bodies, one is orange and the other is light blue, appeared side by side. These two round luminous bodies disappeared soon after they moved horizontally. They repeated appearances and disappearances several times. The number of the luminous body was, at one time, only one and, at another time, was two.

At about 8p.m., the pressmen of the Yamagata Shinbun and some cameramen rushed to the spot through Kazumi's notification..

But, there was no ghost light appeared for some time. Then, at about 9:30 p.m., the crest line of the mountain became bright momentarily and a bluish ghost light appeared.

A cameraman Nobuyuki Kobayashi pressed the shutter hurriedly. The ghost light disappeared soon again. Immediately after this, a blue gleam ran across the sky from the crest line of the mountain.

This phenomenon was the final stage of a two-hour fuss over the ghost light.

It was cloudy with a gentle wind that night. And the moon's age was 12. The moon, three days before its fullness, was lighting the area from behind the clouds. Visibility was good.

bol-0028

KIRBY'S WONDERFUL AND ECCENTRIC MUSEUM Vol 6 p. 263-269 (1820)

### IGNIS FATUUS.

ACCOUNT OF THE SINGULAR PHENOMENON COMMONLY  
CALLED IGNIS FATUUS, WILL-OF-THE-WISP, OR JACK-  
O'-LANTERN.

THESE meteors are in fact nothing more than a real exha-  
lation from the earth, as vaporous gas, or some other weaker  
substance, combined with the matter of light and heat, or  
even with both mixed, which has been elicited either from

animal, vegetable, or mineral substances. They are at all times of a rare and subtle matter, and are mostly generated in low marshy plains, though, at times, but rarely, they may be seen on the tops of lofty mountainous tracts, where boggy springs are situated. The Editor has often seen them on Dartmoor and Exmoor, in Devon, and twice on the side of a mountain in the Highlands of Scotland. To the weak-minded and the superstitious, they are a source of real terror; and, it is probable, that they have frequently seduced a timid and benighted traveller into the dangerous bogs and quagmires where themselves have been generated. Goldsmith, in his beautiful poem of the Hermit, alludes to this fact in the following couplet:

“Forbear, my son, the hermit cries,  
To tempt the dang'rous gloom,  
For yonder faithless phantom flies,  
To lure thee to thy doom.”

These luminous exhalations are designated by the learned, *Ignes Fatui*, or *Mock Fires*—and by the vulgar, *Will o'-the-Wisps*, and *Jack-o'-Lanterns*; and when seen at sea, or near the coast, *Mariners' Lights*, or *St. Helmo's Fires*.

To account for the true cause of these singular appearances, has occupied much of the time and labour of the most skilful naturalists and philosophers in former times, but their explanations have not been attended with success. From the present state of knowledge of natural philosophy, we find it not difficult to be either given or comprehended, and we are not a little astonished to find our early philosophers travelling to Italy, and other parts, for documents which they might have found even near their own fire-side.

For the amusement of our readers, we shall extract some of their vague opinions from the *Philosophical Transactions* of their day:—The Rev. Mr. Dereham, and Sir Thomas Dereham, seem to have been the most successful in describing it. Mr. F. Willoughby and Mr. Ray, with others, think the *Igu's Fatuus* are only the shining of a great

number of the male glow-worms in England. Others contend, that it must in Italy be the *pyraustæ* (a species of fly,) which are numerous in June and July, flying about at night-fall. Sir T. Dereham says, these *pyraustæ* are called *luciole*, i. e. small lights, and that they are not the *furfalls*, as Mr. Ray thought, which are butterflies. The Rev. Mr. Dereham has reason to think, that insects are not concerned in the *ignes fatui*, from the following observations, the first made by himself, and the others received from Italy, by the favour of Sir Thomas Dereham.

Dr. Dereham relates, that in a valley between rocky hills, which he suspected might contain minerals, in some boggy ground, near the bottom of those hills, he saw an *ignis fatuus* in a calm dark night; he got up to it within two or three yards, and viewed it with all possible care. He found it frisking about a dead thistle growing in the field, till a small motion of the air made it skip from place to place.

It appeared like a complete body of light without any division, so that he was sure it could not be occasioned by insects, but a fire-vapour.

He admits, the male glow-worms emit their shining light as they fly, by which means they discover the females; but never observed them fly together in such great numbers, as to make a light equal to an *ignis fatuus*.

As to the communications from Italy, it is observed:—These lights are very common in the plains in the territory of Bologna, and are called *cularsi*, perhaps from some fancied similitude to those birds; the belly and other parts of which are resplendent, like our shining flies. They are most frequent in watery and morassy ground, and there are some such places, where they might be seen almost every night; some of them giving as much light as a lighted torch; and some of them no larger than the flame of a common candle. All of them have the same property in resembling, both in colour and light, a flame strong enough to reflect a lustre on the objects around. They are continually in motion, but



this motion is various and uncertain. Sometimes they rise up, at others they sink. Sometimes they disappear of a sudden, and appear again in an instant, in some other place. Commonly they keep hovering about six feet from the ground. As they differ in size, so also in figure, spreading sometimes pretty wide, and then again contracting themselves; sometimes breaking to all appearance into two, then meeting again, and appearing as one; then floating like waves, and dropping sparks as if out of a fire. And that they are observed more frequent in the depth of winter, when the ground is covered with snow, than in the hottest summer; that it has been observed, that they throw a stronger light in wet weather than in dry; the wet having no effect on it; and yet nothing was ever observed to be set on fire by it; and he was assured, that there was not a dark night throughout the whole year, in which they were not to be seen.

M. Beccari observes, he found these lights very frequent about rivers and brooks, and says—"An intelligent gentleman, travelling sometime in March, between eight and nine in the evening, in a mountainous road, about ten miles south of Bologna, perceived a light which shone very strongly, by a river called Rioverde, on some stones which lay on its banks. It seemed to be about two feet above the stones, and not far from the water of the river. In figure and size it had the appearance of a parallelopiped, somewhat more than a foot in length, and half a foot high, the longest side lying parallel to the horizon. Its light was so strong, that he could plainly discern by it part of a neighbouring hedge, and the water of the river—only in the east corner of it the light was rather faint, and the square figure less perfect, as if it was cut off or darkened by the segment of a circle. On examining it a little nearer, he was surprised to find that it changed gradually from a bright red to a yellowish, and then to a pale colour, in proportion as he drew nearer; and when he came to the place itself, it quite vanished. Upon this, he stepped back, and not only saw it again, but found that the

farther he went from it, the stronger and brighter it grew. When he examined the place of this luminous appearance, he could perceive no smell nor any other mark of actual fire." This same observation was confirmed by another gentleman who frequently travels that way, and who asserted, that he had seen the very same fire five or six times in the spring and autumn; and that it always appeared in the shape, and in the very same place. One night, in particular, he observed it come out of a neighbouring field, and settle in the same place.

Dr. St. Clair speaks of the same flame, and says corn grows within a few yards of it, and he conjectures the flame arises from a vein of bitumen or naphtha.

The opinion of the learned of the present day, respecting these singular exhalations, is, that the principal source of these meteors is to be sought for in the light exhaled by the decomposition of animal and vegetable matter, magnified and deepened in hue by the vapoury haze of the atmosphere of the moist and swampy low lands, in which they are chiefly met with, and which, in consequence of their moisture and swampiness, are particularly favourable to the process of decomposition.

Thus, they say, may be accounted for those meteors that evince no sensible heat during their illumination, for the light exhaled or thrown off from these substances possesses no sensible heat whatever.

It, however, is acknowledged, that a greater or less degree of heat, a strong proof of actual, though slow combustion, has been evinced, during the existence of these phenomena; as, also, that they have extended more widely than any local decomposition would induce us to expect, and that they have even appeared to change their situation, and to dance from place to place.

A modern philosopher says, "To explain meteors of this kind, it is only necessary to observe, that the earth is perpe-

tually exhaling a variety of inflammable gases, and other materials, as hydrogen gas, or inflammable air, phosphorus, carbonic acid gas, and, occasionally, sulphureous vapours; at times, separately, at others, in a state of union; and that the most active of these are particularly evaporating in the low stagnant marsh grounds, where these luminous meteors chiefly make their appearance, and may at any time be collected with the greatest ease, by placing over the surface of the soil an inverted glass tumbler. Now, although these gases will not spontaneously inflame in the ordinary temperature of the atmosphere, yet they readily inflame from a great variety of natural causes to which they are perpetually exposed. Electricity may be a common cause of such inflammation. The heat generated during the decomposition of the animal or vegetable materials that may be locally decomposing, may be far more than sufficient for that purpose, for we know it to be sufficient to ignite hay-stacks, when the grass has been put together too damp, and it is not improbable that some of these materials may catch the illumination as from a candle, from a body in the immediate vicinity that is in the act of spontaneous illumination.

Now the ball, or general mass of inflammable vapour, being once lighted or inflamed from whatever cause, will continue to burn so long as its inflammable principle remains, and its combustible power may be more or less, in proportion to its purity; whence, in some instances, it may pour forth light, with little or no sensible heat; in others, the heat combined with it may be sufficient to produce slow combustion like that of a dunghill; and in others, palpable and rapid flame. From the levity of the illumined or burning vapour, it must necessarily change its place in various instances, according to the current of air which it either finds, or by burning, makes for itself; hence it must appear to move in various directions, upwards and downwards, to the right and to the left; it will seem to advance and then to recede, from object to object, in a constant motion or dance before the

spectator, according to the motion of the current of air that operates upon it, while its dimensions and colours must vary according to the varying density of the fog or haze through which, in different places or situations, it is seen, or according to its actual increasing or diminishing and decaying bulk.



[601-0029]

from

In Malay forests

Sir George Maxwell

[events occurred 1895]

### THE LIGHTS OF CHANGKAT ASAH.

On the west coast of the Malay Peninsula, between the Perak and the Selangor rivers, lies the great Bernam river. At its mouth a fishing village, evil-looking and evil-smelling, huddles on either bank; then the great river sweeps inland; it is navigable to steamers for a greater length than any other river in the peninsula, but an occasional Government launch is the only vessel that disturbs its waters. About a hundred miles inland it opens into a vast, dreary, dismal morass, named Simpang Kadangsa, and loses itself in a wide spread of floating vegetation through which the Malays with trouble hack a way for their boats. Above this horrible pathless expanse it is a clear mountain stream flowing through magnificent forest, inhabited only by herds of elephants and numbers of rhinoceroses. Near the hills from which it takes its source, at a place where the stream is little more than knee-deep, one suddenly comes upon a Malay village of considerable size. It is a lovely spot, and its beauty is intensified by its contrast with the sombre forest from which one emerges: a wide plain of crisp springy turf, grazed short by buffaloes and cattle, with coconut palms waving over the brown thatched houses that fringe the riverbank, and padi-fields covered with the rich and tender green of the young rice-plants.

Tin-ore was found in small quantities in the hills behind this village, and the consequent immigration necessitated a magistrate being stationed there. I was sent there in 1895, and Tanjong Malim as I knew it was a purely Malay village.

My quarters were placed on the river-bank, and facing the house, a little more than a mile away, a hill named Changkat Asah rose abruptly from the level plain that stretched out on all sides around it. The cultivated area extended to its base, but thence to its summit, some 700 feet high, it was clad in virgin forest. The huge dark mass dominated the beautiful village at its base. It was of course the feature of the place, and an object of superstitious dread to the Malays. Many were the stories told of the spirits that dwelt there, and no searcher of rattans or gutta dared to remain on its slopes after dark. Every Jin and Efrit known to the Eastern mind; the malignant demons that change their form at will; the familiar spirits of sorcerers; heads of women that roam the forest to suck the blood of men; the Voice-Folk whom all can hear and none may see—every kind of spirit lived on Changkat Asah. The mass of stone that forms its highest point was said to be a *bilek hantu*, "a spirit's room". The Malays believed that this formless mass took shape at night; and men have told me that the lights in this meeting-room of the spirits might occasionally be seen from the plain below.

Some years ago the Trigonometrical Survey Department had wished to have the summit of the hill cleared for an observation station, and, as might be expected, had experienced the greatest difficulty in getting any Malay to take up the contract. Finally a foreigner from Sumatra—a man named Baginda Sutan—was induced by the high price offered to undertake the work. He persuaded some other foreigners from the states of Kedah and Kelantan to join him, and at first they climbed the hill every morning to their work and returned before dusk. But they thus lost half their day's work, and after a while Baginda Sutan asked them if they were prepared to sleep on the hill. This, though he made light of the local reputation of the hill, and pointed out that hitherto they had met with no supernatural obstacles, they absolutely refused to do. As no promises of higher pay would



move them. Baginda Sutan decided to shame them into compliance, and announced his intention of staying on the hill the next night by himself. He felt confident that after a night or two, when nothing had happened, his men would be encouraged by his example, and that they would all sleep on the hill, and be able to put in a full day's work. The next day, therefore, when the Malays returned down the hill in the afternoon, Baginda Sutan chaffed them cheerily for a lot of cowards, and remained behind hard at work felling a tree. When the men returned next morning they found only a raving lunatic.

The contract not unnaturally terminated abruptly, and when I came to Tanjong Malim, the Trigonometrical Survey Department was still without a station on Changkat Asah. I saw Baginda Sutan once by chance in a Malay house, and thus heard the story of his fate. The poor man, who had once been a flourishing energetic petty contractor, was in a state of absolute idiocy; and never since the day that his terrified men had conducted him down the hill, had he been able to give any account of what he had experienced.

Soon after my arrival an officer named B. was sent by the Survey Department to put up a station on Changkat Asah. He employed Javanese coolies, and at first lived with me, climbing the hill daily with his men until they had put up a shanty for him and another for themselves. He then went to live on the hill while superintending the clearing of the site and the erection of the station, and the fact of his being a white man gave his men sufficient confidence to follow him. Two or three days later he tottered into my house. Never have I seen a man in such a state of absolute collapse. Ghastly white, as if all the blood had been drained from him, with shaking hands and trembling mouth, he told me his story. I hasten to say that it had nothing to do with the supernatural inhabitants of Changkat Asah: his adventure had been with a tiger. On Changkat Asah his apology for a house consisted of palm-leaf walls, a split palm floor-

ing, and a palm-leaf roof. It was built on the side of the hill close to the summit, and the slope of the ground was such that, while on one side the flooring was on the level of the ground, on the other it was some two feet above it. His Chinese servant occupied a small lean-to, which was built a few feet lower down the hill, and his Javanese coolies lived nearly two hundred yards away by the source of a small stream whence they got their water-supply. The second night that he had slept on the hill he had been awakened by some animal breathing and moving outside his shanty, but, imagining the sound to be that of wild pigs, had turned over and gone to sleep again. The next morning his coolies pointed out to him the tracks of a tiger that had walked round and round him during the night. He had no weapons with him, and very foolishly did not think of sending down the hill for any. He went to his day's work forgetting all about the matter, and at night went to bed without a thought of any danger. Soon after he had gone to sleep he awoke with a start and heard the tiger close beside him outside the house.

His mattress lay on the floor close to the wall, on the side near the summit, and here, as I have said, the floor was on a level with the ground outside. The tiger was on this side of the house, on the rising ground above him, and only a few feet separated them—a few feet and some palm-leaves loosely strung together. His first idea was to make a rush for the door on the other side of the house, but this he did not dare to do, for fear that the tiger hearing him attempt to decamp might forget its caution and jump in upon him. He therefore lay motionless and shouted for his Chinese boy to bring a lamp—but then, getting a sleepy answer from the boy, unluckily told him to hurry up, as there was a tiger outside. After that the boy not unnaturally refused to move, and so B. lay there on his mattress absolutely defenceless and in the dark. When he had shouted to the boy the tiger had kept quiet, but as soon as he stopped shouting he heard

it again. He heard the tiger smelling at him, and the sniff-sniffing of its nostrils as it tried to take in all that there was to be smelt, in the same way that a hound snuffs up a state scent or tries to make out what some strange food may be. The heavy fetid breath of the animal was over him, and the deep body sound that is half purr half growl vibrated in his ear.

Again B. shouted until he had to stop for want of breath, and again the tiger kept perfectly quiet. When B. stopped shouting, and lay with gasping lungs and throbbing heart, hoping that he might have frightened the animal away, he would hear after a minute or two a gentle sniff outside which told that the tiger was still there. Again he would yell as long and as loud as he was able, but all in vain; when his voice ceased, he would hear the quiet sound outside, within perhaps two, perhaps three, feet of him—not more—patient as the mouse within the wainscoting, imminent and awful as death incarnate. The wretched man soon despaired of making himself heard by the coolies in their shed below: they were a considerable distance away, and as they were on a lower elevation, B.'s voice did not reach down to them through the heavy forest. There was nothing to be hoped for from the Chinese boy, who had seen that his best chance of safety lay in perfect silence—though, poor wretch, he too would probably have been glad to have been able to relieve his feelings by yelling. Let those who, under like circumstances, would have carried unarmed a lamp from one house to another accuse him of cowardice.

B., though he had no hopes of obtaining assistance, had no option but to continue shouting as long and as often as he could, for the brute outside seemed to gain encouragement, as evidenced by deeper and louder sounds from anything longer than a momentary silence. Twice he tried to rise stealthily from his mattress to make a rush from the door, but, though he attempted to cover the sound of his movements by his shouts, the creaking

of the light flooring betrayed any movement, and a savage growl warned him to desist. Though in this agony of mind and utter physical exhaustion, B. was, he said, beset by a curious difficulty: he was at a loss for words to shout. He had to shout to keep the tiger from leaping in upon him, and he could not shout unless he could think of something to articulate. He had ceased to call for his men, and for hours yelled furious orders to the tiger. Finally, as hour after hour passed by in the alternations of the paroxysms of the man and the subdued contented sounds of the tiger that held him at its mercy, he was so wrought that, without hope of any chance of life, he shouted out at the top of his voice the prayers he had learned as a child. Every time he ceased for want of breath it seemed as if the strength to begin again would fail him. More than once he was tempted to hasten the end he felt could not be far off by getting up from his bed and thus bringing the tiger upon him. But this he could not bring himself to do. In this way the poor man passed the night. He first heard the tiger at about nine o'clock, and it was not until the day began to break that it left him.

After hearing B.'s story, I decided to go up the hill with him and to wait for the tiger that night. In the afternoon two Malays came up with us and tied up a goat outside the house in which B. had slept, making a seat for us on the trigonometrical station that was being erected a few yards away. I was surprised at the tracks outside the little palm-leaf house: the tiger had walked up and down, up and down, beside the house, and deep prints showed where it had lain facing the place on the bed where B.'s head had been. The two front paws were within two feet of the bed, and the impression showed that the tiger had been there for many hours. The palm-leaf wall was so flimsy (any cat could have jumped through it) that the only human reason for B.'s marvelous escape must be that the tiger had imagined the house and its inhabitant to be a trap like those often set by

the natives, and, though obviously hungry, had lacked the courage to put it to the test. Our men returned down the hill, and after an examination of the paths leading to the place we climbed into our seats. It was about five o'clock, and the sun was dipping to the western forest. The cultivation and clearing that formed Tanjong Malim lay all open at our feet. On every side it was shut in by forest: to the east it ran up to the great densely timbered mountains that form the main range of the peninsula; to the south it continued miles upon miles towards Selangor; to the north the same featureless expanse of heavy-leaved trees extended to Perak; and to the west it swept away past the hill on which we were to the low-lying hills of the Wild Dogs, and beyond them to the wide pathless swamps of Simpang Kadangsa. In the midst of this sombre dark-green sea of eternal forest, like a jewel fixed in some plain setting, lay the beautiful clearing of Tanjong Malim. Several bends and stretches of the Bernam river lay clear and cool in an atmosphere permeated by the setting sun, and in the far background gradations of light and shadow showed its valley and its source in the distant mountains. The village seemed to be almost at our feet. Every house stood distinct, and we could clearly hear the "moo-ah" of the buffaloes, and the barking of the dogs. Beyond the small row of shops was the police-station, beyond it my quarters, and a path from the village led past my house to the mines farther up the valley. As the sun sank over the mountains a little breeze sprang up and alleviated the heavy heat of the day-time, and then, as the Malays say, "the day turned to become night". As evening approaches a little breeze, wandering imprisoned among the tree-trunks, like a disembodied creature, blows chill upon one's cheek, and there is an eerie feeling of expectancy that will not be dispelled from the mind of any one who is alone at this time in the forest. The darkness increases rapidly. It seems to settle down among the tree-tops in layers, and to sink thence slowly

to the ground, falling like black, impalpable snow and shutting out the light above. Even at sunset I doubt not that Baginda Sutan felt that he had been over daring. One knows that at nightfall the animals whose tracks may be seen on every side but which themselves are rarely seen in the daytime, will be moving in search of food. The great tree-trunks stand like enchanted giants, and seem only to await some signal to escape from the charm that binds them. Again the little damp breeze puffs upon the belated Malay, and this time it seems to have been blown by some unseen mouth. The animals that have slept all day are stirring now, and he cannot but doubt that so too are the spirits. A shadow seems to move from one tree-trunk to behind another, and as he turns his head suddenly towards it, he sees at the side of his eye other shadows move at the spot from which he has just turned. Then, as it gets darker, everything around him alters its appearance; where stood a bush now looms the shadowy form of a rhinoceros, and something with the outline of a tiger crouches at the foot of a black tree-stump. The more his eyesight strains, the less real does the object on which he gazes become, and lights and spots dance and flicker beside his eyes. Curious squeaking, chirping noises become more frequent as the darkness increases, and as they cannot be definitely assigned to bird, frog, mammal, or insect, suggest a supernatural origin; and if by chance any of the awful eagle-owls scream—uttering an ear-piercing yell, like that of a woman suddenly seized and tortured—the nerves of the man are strong who can repress a shudder, and the Malay would be rare who would not think that it was connected in some way with the forest spirits. When night had closed in, and the darkness prevented any possibility of retreat, it cannot but be that Baginda Sutan bitterly repented him of his foolhardiness.

The lights of the valley below us twinkled brightly. We could see the outline of the village streets, the police-station, and my quarters, while little specks of light



marked the scattered houses up and down the river-banks. The unhappy goat, after a few plaintive bleats, followed at intervals by heart-rending and consumptive coughs which seemed to be directed at us, settled itself to sleep and silence. The moon was in its last quarter, and would not rise until past midnight. So we sat lonely on our peak waiting for the hours to pass. Suddenly I saw two lights far up the Bernam valley hurrying down towards the village. "Fight among the Chinese in the mines", was my comment; "and here are two men coming down to the police-station to make a report". We watched the progress of the two lights down the valley, seeing them pass the miniature blaze that marked my quarters and go on towards the police-station on the river-bank. Then in an instant the two lights flew up into the air, and rushed straight at us. So fast did they fly, and so directly did they aim at us, that before we could realise that they were not the lamps of Chinese miners clamouring far below us outside the distant police-station, two great balls of light sped by within fifty feet of us. To say that we were frightened is to put it lightly. I gave a gasp, and but for the support at my shoulders would have fallen backwards out of my seat. The suddenness of the assault was overwhelming. From our lonely eminence we had watched the lights making their way down the valley, my interest tempted with thoughts of the court case they might portend for the next morning; and in a second, even as we watched them, the tiny lights had turned to fiery globes of the size of a man's head, and their speed had become terrifying. However, as our visitors passed us, we saw that they were natural phenomena, and either chemical gases or electric fluids—that is to say, they were either of the nature of a Will-o'-the-wisp or of a St. Elmo's light.

These two lights seemed to us to have arisen from the marshes above the village. Thence they were gently borne by currents of air down to the river-bank, where

they were caught by the night breeze and carried up to where we sat. Soon after several more came drifting down from both sides of the valley towards the river-bank, and all, as they reached it, were seized and whirled by the wind in all directions. Before long there were over a hundred to be seen. The wind was fickle and variable, and sometimes a dozen of these balls of light, which were now all round us, would fly down the river together and meet others floating lazily by: they would play round one another as though in doubt which way to take, and then a current of air would come eddying round the hill and catch them up and hurry them out of sight. When the wind dropped and there was perfect calm, six or eight would rise, moving in and out among one another as if in some game, and mount up through the air, playing and dancing until they became small bright specks, then slowly sink, revolving and interlacing, until again a breeze would spring up and send them flying helter-skelter up or down the river. We noticed that the lights, as they moved upwards, downwards or sideways, were always round in front and tapered away slightly so as to become somewhat pear-shaped. I imagine that this shape is caused by the pressure of the air upon the moving body. Thinking of this curious shape, I realised what we were watching. The dancing and flying lights were the spooks known as *penanggal*. The Malays believe that sometimes when a woman dies in childbirth she becomes a *Penanggal*, and that at night her head, with a short part of an entrail, breaks from the grave and flies through the country, flame-coloured and with open mouth, to suck the blood and life of any man who may fall within its power. "That which is detached", is the literal meaning of the word. The head with its gruesome appendage can only detach itself at night-time, and must return to the grave before day-break; and if it should lose its way, or become caught in any thicket so that it is overtaken by the light of day, there is an end of it. It falls to the ground or remains

held by the thorns, and the passer-by sees it there—no longer luminous and nebulous as at night-time, but in the materialised form of the head of the woman that had been. It was, I have said, the peculiar shape of these balls of fire that made it flash upon me that they were *penanggal*, and we could then understand the terrors of Baginda Sutan when he found himself alone on the hill—known and feared by all as the home of spooks and devils—and saw himself surrounded by numbers of these unholy phantoms. What was really a wonderful and beautiful sight meant to him a diabolical orgie at the meeting-house of the spirits; and he must have looked upon himself as lost and doomed to a lingering death amongst these horrible graveyard ghouls.

All night long the lights beguiled the tedium of our vigil, for they did not disappear until a saffron light over the eastern mountains heralded the coming day. Damp with dew, and chill and stiff, we clambered down from our seats. The wretched goat awoke and bleated at us reproachfully. We had not seen nor heard anything of the tiger; and the goat had thus been luckier than it knew of, while we had seen something far more interesting than any tiger, and therefore did not take it much to heart. When we emerged from the forest path at the foot of the hill, and were making our way through the padi-fields, we happened to meet the district headman, Haji Mustapha, who was, under me, the chief Government official of Tanjong Malim. I told him of what we had seen, explaining how we had first observed the two lights come running down the path above my house. "By the Mercy and Grace of Allah", he exclaimed, "you have been marvellously preserved! *Penanggal* in truth were they; for know that the direction from which those lights came is that of our old disused burial-ground".

The question is, What were these lights? They certainly seemed to us to come up from the swamps of the valley, and this would point to their being of the nature of a Will-o'-the-wisp, which is only marsh-gas.

CH<sub>4</sub>, a chemical compound of carbon and hydrogen. But in England, at all events, a Will-o'-the-wisp is a small, feeble, flickering light hovering only a few feet (if so much) above the level of the marshes. These lights, on the other hand, were the size of a man's head, shone with a phosphorescent glow, and, as they passed over the summit of Changkat Asah, were at least 700 feet above the level of the plain. Perhaps they were St. Elmo's lights. The objection to this is that St. Elmo's lights are supposed to be caused by an electric disturbance of the atmosphere, and are generally stationary, attaching themselves to a fixed point like the masthead of a steamer; whereas the night on which we saw these lights was clear and bright, and, as I have said, the lights flew upon the wings of the wind. I cannot say what they were. If they were composites—the sailor's name for St. Elmo's lights, and his corrupted form of the words *corpo santo* (holy body)—there is a curious parallel between the superstition of the British sailor and the Malay.

I never saw the lights again; and neither did B., though he spent some weeks on the hill. The tiger roared close to his camp a few nights later, and he and another officer in the Survey Department sat up for it several times without success.

No other European that I know has seen these *penanggal*, but Malays have told me that they have seen them; and the people of Tanjong Malim agreed that these must be the lights that were occasionally seen on Changkat Asah from the village.

I wish I knew what those flaming balls were. But of one thing I am certain: when we watched those flying and dancing lights, we looked upon that which had robbed Baginda Sutan of his mind\*.

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\* See Appendix II.

## APPENDIX II.

### THE LIGHTS OF CHANGKAT ASAH.

**T**HE first two editions of this book contain the following footnote at the end of the article on "The Lights of Changkat Asah":—

Since writing the above I have seen the following account by Mr. Andrew Lang in the 'Illustrated London News':—

"I am well acquainted with the set of lights which are often seen by the people of Ballachulish and Glencoe, villages on the south side of the salt-water Loch Leven (not Queen Mary's fresh-water Loch Leven), on the west coast of Argyllshire. They are bright lights which disport themselves on the north side of the loch, where steep hills descend to the level, and to the road along the level, leading to the head of the loch. They rush, as it were, along the road, then up the hill, then down to the water edge, and so on, and are visible not only to the Celtic natives but to the English tourist. The ground is not marshy, even on the level, and the phenomena, though doubtless natural and normal, have not yet found a scientific explanation. They are not what people call 'corpse candles,' and a local myth used to attribute them to the agency of a dead laird—an explanation in itself improbable, and now abandoned as inadequate to the facts of the case."

These Loch Leven light would appear to be the same thing as the lights of Changkat Asah.

From time to time I have received letters from people in Siberia, Russia, Germany, Finland, Norway, Scotland, and South America, with accounts of their experiences with these flying balls of light, and with their theories and suggestions. These letters were, of course, not written for publication.

In conclusion, I may say that the virgin forest which surrounded Changkat Asah in 1895 has now been felled, cleared and to a certain extent replaced by rubber, but that the "lights" on the hill top have been seen from time to time by the Europeans on the rubber estates at the foot of the hill.

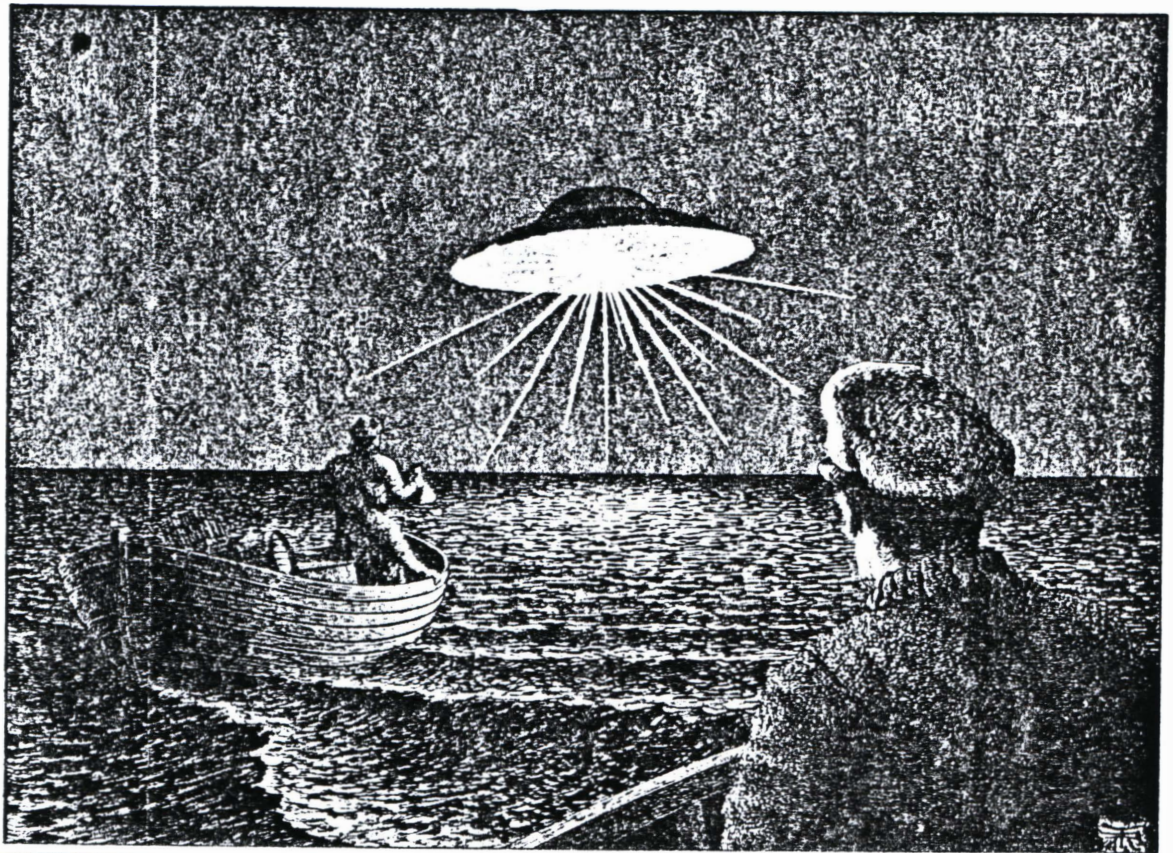


601-0030

# LUMIÈRES DANS LA NUIT

MYSTÉRIEUX OBJETS CÉLESTES

CONTACT  
LECTEURS



Sindbad le Marin

## SINDBAD LE MARIN

Les dessins illustrant cet article ont été réalisés par M. Talle qui a accepté de se charger désormais de notre service illustration, aidé par nos amis qui voudront bien se joindre à lui.

### Premier pêcheur

Il y a deux ans, en 1968, au mois d'avril, nous étions partis trois, assez loin au large, par un soir de gros temps, avec nuages et vent fort. Il ne faisait pas encore tout à fait nuit, lorsque soudain dans une éclaircie, à côté d'un nuage, est apparue brusquement une sorte d'« affaire », un peu ovale, qui se tenait droit dans le ciel. Cela ressemblait à une glace, c'était brillant, ça ne bougeait pas. Un nuage passa devant le cachant quelques minutes, puis le nuage passé la drôle d'affaire était à la même place. Il nous a semblé que cette chose avait changé de couleur en prenant des

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éclats rosés. Au bout d'un quart d'heure environ, elle sembla se déplacer très lentement d'est en ouest, et elle perdit lentement de sa hauteur. Au fur et à mesure que cette chose descendait elle changeait de forme, car l'ovale au lieu de rester vertical était devenu horizontal, et de rosée la teinte vira au bleuté. L'objet resta immobile au-dessus des flots pendant 2 ou 3 minutes, puis l'étrange chose brillante disparut à nos yeux comme engloutie par les flots, nous ne l'avons pas revue.

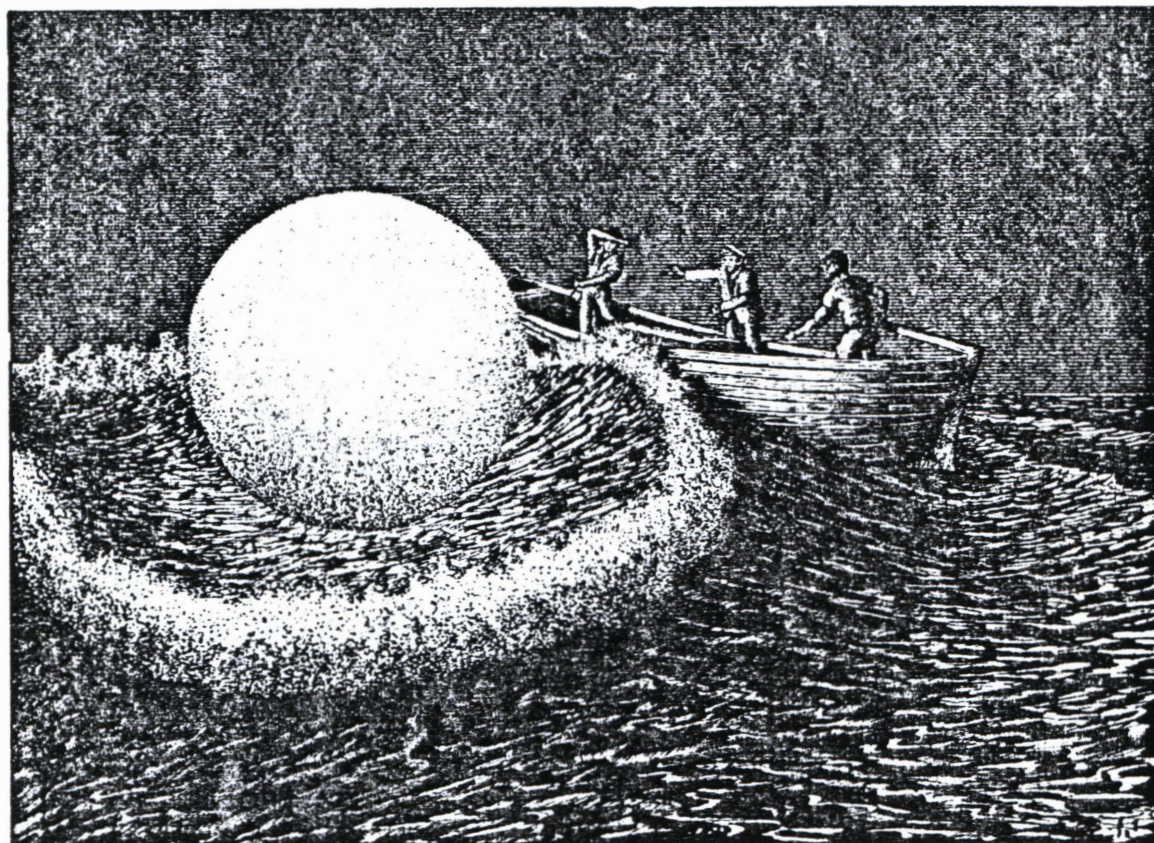
Notre observation avait duré 25 minutes, nous n'avons entendu aucun bruit, l'objet était absolument silencieux, bien qu'il n'était pas très éloigné de notre barque. Il n'a produit ni traînée, ni flamme, ni étincelle, il était tout à fait nu. Nous n'avons pas su ce que cela pouvait être.

## Deuxième pêcheur

Nous étions partis au large jeter nos filets, moi et mes deux compagnons, le 12 juin 1958, cela fait 12 ans. Il faisait très clair, le ciel était étoilé, la mer était calme. Nous avons aperçu un gros point brillant dans le ciel, de couleur orangée, un peu rouge. Ce point a grossi, puis il s'est mis à tomber très vite vers la mer, et c'est devenu une grosse boule qui arriva à la surface de l'eau.

En frôlant les vagues elle se tint immobile plusieurs minutes, mais il nous semblait qu'elle tournait sur elle-même, comme une roue qui se serait tenue debout sur place. Elle provoquait un déplacement d'air, car nous apercevions l'eau s'agiter autour. Il nous sembla par la suite que cette boule se déplaçait en frôlant les vagues, et qu'elle se dirigeait sur nous en roulant. Mes compagnons et moi n'étions pas du tout rassurés de voir cette « boule roue » se diriger vers notre barque. L'un d'eux dit d'une voix terrifiée : « mais elle va nous passer dessus ! ».

Cette roue fantastique ne passa pas sur nous mais très près en soulevant de très grosses vagues qui manquèrent de nous faire chavirer. Elle dégagait à proximité une très forte chaleur et provoquait un fort déplacement d'air. Nous avons entendu quand elle passa près de nous un faible bourdonnement, comme le ferait un essaim de hannetons. Son diamètre, comparé à notre barque, pouvait être de 4 mètres. Médusés, nous l'avons vu s'éloigner à grande vitesse. Elle procédait par bonds, tantôt elle rentrait de moitié dans les vagues, tantôt elle les frôlait, puis elle bifurqua à droite pour disparaître à l'horizon. Elle n'a projeté aucun rayon ni autre, c'était seulement une boule ou une roue tournant sur elle-même et ne changeant pas de couleur.





Nous étions pressés de rentrer, et nous l'avons fait plus tôt que prévu. Un de mes compagnons dit « C'est peut-être une soucoupe volante tombée du ciel ». Nous n'avons pas osé raconter ce que nous avions vu, on nous aurait ri au nez. Nous avons été quelque temps sans reprendre nos filets tant nous redoutions de rencontrer à nouveau cette roue fantastique, mais nous ne l'avons jamais revue. Nous n'avons aucune idée de ce que ça pouvait être.

#### Troisième pêcheur

Voir page 1

Nous étions partis trois sur deux barques, moi j'étais seul dans la mienne, mes deux compagnons ensemble dans la leur. C'était le soir du 1<sup>er</sup> août 1962, cela fait 8 ans, et il était entre 11 heures 1/2 du soir. La nuit était très belle, le ciel étoilé avec un vent faible, et la mer assez calme. A un moment donné, j'aperçus à 300 mètres environ un grand corps métallique, de forme allongée, avec une espèce de cheminée ou tourelle au milieu, qui semblait se mouvoir lentement à la surface de l'eau, et finit par s'arrêter. Je dis aux compagnons qui se trouvaient sur l'autre barque « Il y a un sous-marin qui a fait surface pas loin de nous, il n'a pas l'air de se gêner ». L'un d'eux me répondit « Ce doit être un sous-marin étranger, c'est un modèle que je ne connais pas ». Puis il y eut quelques agitations de vagues autour du sous-marin, et j'ai pu alors distinguer des « hommes grenouilles sortant des flots, et monter sur le bâtiment ». Ohé les copains ! Salut les copains ! Alors ça marche ! « Ils ne se sont même pas retournés ! Mes deux compagnons qui les avaient vus aussi, et entendu mon interpellation, les ont appelés à leur tour dans le porte-voix « Ohé les copains ! Peuchère vous êtes bien fiers aujourd'hui ! Etes-vous d'ici ? Peut-être êtes-vous étrangers ? Mais répondez-nous au moins ! ». Sans résultat, il n'y eut aucune réponse de leur part.

Je les ai bien vus, et j'en ai compté une douzaine environ qui sont montés sur le sous-marin. Trois ou quatre se sont même retournés, puis se sont arrêtés quelques instants avant de disparaître dans le bâtiment. Le dernier, avant de rejoindre les autres, s'est retourné vers nous, a levé le bras droit au-dessus de sa tête en le balançant quelques instants au-dessus, comme un signe de salut, pour nous dire qu'il nous avait vus, et disparut dans le bâtiment comme ses compagnons.

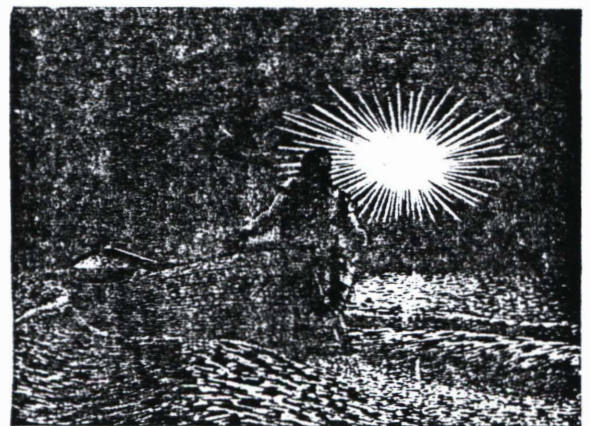
Nous avons vu ensuite ce dernier sortir complètement de l'eau, se laisser balancer par les vagues, puis des feux se sont allumés, rouges et verts, un rayon de lumière blanche vint jusqu'à nos barques. Cette lumière venait d'un projecteur, elle ne dégageait pas de chaleur ni rien de désagréable, puis elle s'éteignit. Le bâtiment s'illumina alors d'une lumière de teinte orangée, les feux rouges et verts se sont éteints, il se mit à tourner très lentement sur lui-même, de gauche à droite, et il s'éleva au-dessus de la mer d'une vingtaine de mètres environ. Il nous apparut alors comme un plat ovale presque rond, de la dimension d'un sous-marin de marine moyen. Il s'immobilisa quelques minutes, puis il se mit à tourner plus vite, sa lumière devint plus forte et il démarra brusquement à l'horizontale à grande vitesse, dans un grand silence au-dessus de la mer. Sa lumière devint rouge flamme, puis il se redressa pour suivre une ligne incurvée, il revint sur les lieux en décrivant une belle ligne courbe tout en s'élevant, et en prenant de plus en plus de vitesse. Il disparut en devenant un tout petit point rouge parmi les étoiles. Nous l'avons suivi quelques instants encore et il devint totalement invisible. Nous

sommes restés un bon moment bouche bée, les yeux exorbités, fixés sur ce point du ciel où disparut ce fantastique appareil. A part le bruit des vagues nous n'avons rien entendu, et nous nous sommes bien demandé ce que cela pouvait être. Ni sous-marin, ni hélicoptère, ni hydravion, nous nous en serions bien aperçu.

Nous n'avons jamais parlé de cette mystérieuse et fantastique rencontre en plein mer, très sensibles à la raillerie et à la moquerie nous avons gardé le silence jusqu'à aujourd'hui pour n'en parler qu'à vous.

#### Quatrième pêcheur

La chose s'est passée le 10 septembre 1965, cela fait quatre ans et demi. J'étais parti seul dans ma barque, la nuit était douce, le ciel étoilé, la mer calme. Après minuit, je vis au-dessus du niveau de la mer se former rapidement une grande lueur qui monta très haut dans le ciel. Elle était de couleur rouge et tout de suite j'ai pensé à un bateau en feu, mais je ne voyais ni flamme, ni fumée. Cela ressemblait plutôt à un immense feu de bengale avec un peu de fumée ou de vapeur. Ce feu changea de couleur, devint orange, puis vert, puis bleu, puis redevint rouge. Je n'entendis aucun bruit d'explosion, tout se passa en silence, ce feu ou cette lueur se sépara, se morcela en plusieurs parties, s'estompa petit à petit, s'effaça, s'éteignit, et tout le ciel redevint noir. Mon observation avait duré 1/4 d'heure. Je n'ai jamais su ce qui s'était passé ce que pouvait être cette lueur, ni d'où elle provenait. Je me suis informé pour savoir s'il y avait un bateau qui aurait brûlé ou explosé dans ces parages, il m'a été répondu que non, et qu'il n'y avait eu aucun feu d'artifice ou de bengale. Je n'ai jamais su ce qu'il s'était passé.



C'est en flânant sur le port du Brusc, dans le Var, que notre informatrice a rencontré ces pêcheurs et a provoqué leurs confidences qu'elle nous a rapporté. Comme dans bien des cas, les témoins ont demandé l'anonymat, mais ont révélé leur identité. Nous ne nous en serions pas formalisé si à la faveur d'un contrôle, que la prudence oblige, d'abord par lettre, revenue « inconnu », puis avec l'aide de notre délégué régional, nous avons pu retrouver les protagonistes. A l'heure où nous écrivons leur identité n'a pu être confirmée. Nous ne savons que penser, et c'est pourquoi le titre : SINDBAD le marin (des contes des Mille et une Nuits). Ils nous ont paru cependant présenter certains caractères d'authenticité, et c'est pourquoi nous vous les avons présentés sous toutes réserves, en espérant bien retrouver nos « conteurs ». Dernière minute. Il y a de grandes chances pour que les témoins soit retrouvés



bol- 0031

DAILY EXPRESS Friday May 23 1966

## == FOREIGN NEWS ==

# Jets scramble over the ping-pong UFOs

From HAROLD EMERT in Rio de Janeiro

**BRAZIL** scrambled fighter planes to chase multi-coloured UFOs the size of ping-pong balls over three cities.

The objects showed up on radar screens at the Air Space Defense Center, said Air Force Minister Otavio Moreira Lima yesterday.

"I can't give an explanation for this — because we don't have any," said Brigadier-General Lima.

"They had saturated our radar system and were inter-

fering with air traffic, so we decided to send up planes," he said.

Two French-made Mirages and two U.S. F-5s were dispatched to pursue the unidentified flying objects over Sao Paulo, Sao Jose dos Campos and Rio de Janeiro.

Pilots said the objects travelled at 840 mph alongside the aircraft.

The jets chased them for three hours but had to turn back because they were running out of fuel.

Spring 1986

## WILL O' THE WISP (APT TO LEAD RESEARCHERS ASTRAY)

Phil Reeder

While travelling on a bus, near Ashbourne, Derbyshire, many years ago, I overheard two elderly women reminiscing about how the countryside thereabouts had changed over the years. One remarked to the other that as a girl she could remember a certain field where Will O' the Wisps used to 'play'. Her friend too recalled seeing them there, but added that they had now gone.

At the time, the most remarkable thing to me about their conversation was the casual way these country women had accepted the existence and regular occurrence, albeit in their youth, of a phenomenon I had thought extremely rare if indeed it existed outside fairytale. I've always regretted not making their acquaintance to enquire further.

Will o' the Wisp is a most unusual phenomenon. A typical dictionary defines it as : A light seen flitting over the marshes, the Ignis Fatuus; an elusive person or hope. The same dictionary will probably be more forthcoming about Ignis Fatuus (foolish fire), defined as : A phosphorescent light seen chiefly over marshy ground, 'believed' to be the spontaneous combustion of gas from decomposed organic matter; deluding or misleading, apt to lead travellers into danger.

Accounts of Will o' the Wisp's appearance differ widely, so much so as to lead some to suggest that it is a mere fabrication or hallucination. However, study of the available evidence suggests that it is not a fabrication; indeed, there may be more than one phenomenon involved, although hallucination may play a part.

Under the entry Ignis Fatuus, Chambers' Encyclopaedia states that it has : "A luminous appearance, sometimes seen on still nights over marshy ground or in graveyards. It occurs quite irregularly and unpredictably. It has however been seen sufficiently often by scientifically trained observers to make it certain that a distinct objective phenomenon is involved, the nature of which has not yet been fully ascertained. According to the majority of accounts it appears as a flame usually situated on, or a little above, the ground. It may be of various colours, commonly blue. It may occur singly or be repeated at distances of a few yards." (1)

An early account of the phenomenon was given by a traveller called Hentzner, returning from Canterbury to Dover in 1598. He reported that : "There were a great many Jack-w'-a-Lanterns, so that we were quite seized with horror and amazement." (2) Jack-w'-a-Lantern, or Jack o' Lantern, is just one of the many diverse names for the phenomenon used nationwide. To

date, I've on record at least twenty six colloquial names, thirty nine including slight variation within the British Isles alone. Another early recorded sighting occurred at Astley, near Worcester, where three men saw a Will o' the Wisp in a garden at about nine o' clock on a dark night. At first they took it to be a country man with a lantern, till approaching within about six yards it suddenly disappeared. It became visible again in a dry field, some distance away, but disappeared suddenly a second time. After other sightings one approached quite close but seemed to pack off as if in a 'fright'. (2)

A correspondent to 'Notes and Queries', in 1855, asked whether in fact they existed outside poetic tradition and received several replies from people claiming direct experience, and providing descriptions. (3) However, S. Birchby noted only twenty sightings, by reliable observers, of the phenomenon taken from the 'Gentleman's Magazine' and the periodical 'Notes and Queries' covering the period 1805-1942, with none later than 1911. (4) Indeed, it would appear that after reclamation of much of Britain's marsh land was completed by the end of the last century sightings fell considerably.

Several interesting cases were recorded by D. MacManus in his book 'The Middle Kingdom'. In one instance, a very intelligent and well balanced girl was walking home an hour or so after dark when she saw a Will o' the Wisp moving slowly along the bog parallel with the road not fifty yards away. She stopped to look at it, but it suddenly changed course and began to come straight towards her, increasing its speed. She hastily moved down the road away. To her consternation it changed direction too and still came straight towards her, now crossing the bog as fast as a man could run on the road. She turned and fled. She was later convinced that it was directed by a real 'intelligence', a point I shall return to later. (5)

To date, I've seen no published photographic or film record of an aerial light specifically assigned to a Will o' the Wisp, although there are many photographs in existence depicting unusual spheres of light, several of which are assigned to the recently recognised Ball Lightning phenomenon. A particularly good example of such a light is published in Paul Devereux's 'Earth Lights', where a light source, believed to be Ball Lightning, is recorded on film tracing a pulsing zig-zag path through the air. (6)

The spontaneous combustion of marsh gas (methane) is often cited to be the cause of Will o' the Wisp. It is a well known fact that rotting organic matter produces methane (CH<sub>4</sub>), a low order hydrocarbon. However, methane does not combust spontaneously : the current use of natural gas would not be feasible if methane, its chief constituent, was so unstable. A suggested trigger for combustion is liquid hydrogen phosphide (P<sub>2</sub>H<sub>2</sub>), traces of which can sometimes be found where organic matter is decaying. The presence of hydrogen phosphide vapour with methane in a ratio of about 1:500 would create a spontaneously inflammable mixture in air.

601-0032

Assuming that hydrogen phosphide is the trigger, do the characteristics of burning methane match the observed phenomena? Methane rising to a point on the surface at a continuous and regulated rate if ignited would appear as a flickering, but fixed, flame, like a Bunsen burner. Will o' the Wisps have been observed as a silent and steady flame, "sometimes flickering and extinguished by puffs of air, subsequently reigniting with a barely audible explosion." (1) A fixed methane flame may well account for some sightings, yet the phenomenon is often seen moving through the air, even against prevailing winds.

Although methane is considerably lighter than air, quantities of the gas could conceivably collect in stagnant air pockets, such as would be formed by tall reed beds. If small pockets of methane were to collect and ignite they would 'pop' and be extinguished. A larger mass of gas upon ignition in air would create momentarily a fireball that would rise rapidly through the air as the hot gases expanded, but this too would rapidly extinguish itself upon exhausting its fuel. A fireball such as this would also generate heat, yet most observers have failed to detect substantial heat from the phenomenon.

MacManus gives an account of a man who came into contact with a Will o' the Wisp: he saw one 'hopping' towards him, while walking at night along a track across a bog. "It came so close that he kicked out at it and broke it up into a number of smaller balls which went 'dancing' on till they disappeared after twenty yards or so. Some globules or patches of light remained on his trousers, and in fear of getting singed he brushed them off with his hand. The light went out as he brushed, and he felt little or no heat on his hand."

The longevity and lack of heat generation by Will o' the Wisps casts doubt upon the methane theory at least under normal combustion. Many hydrocarbons will react slowly with oxygen at temperatures well below the ignition point, corresponding to the production of a normal flame. In some cases this slow combustion may be accompanied by the emission of light in the form of either a faint glow or a cool flame slowly traversing the mixture. These cool flames and glows are very feeble sources of light, requiring long exposure to photograph. Cool flames have so far only been observed for higher hydrocarbons, not methane. However, glows have been noted. (7)

Glowing spheres were produced experimentally by ignition in air of low concentrations of combustible gas. Gases, including methane, were ignited by means of a brief electrical discharge and the results observed in vertical cylindrical glass tubes. Although the results for methane are not discussed, luminous spheres of differing colours were produced. Under ideal conditions the mass formed resembled a corona discharge, a hollow mass glowing on the surface. These bodies traversed the height of the cylinders at velocities between 0.3 and 10 m/s. The spheres gave off only moderate warmth and others were noted to give a hissing sound.

The formation of the globes is restricted to a region just below the normal combustion level associated with the various gases. Although these glows do offer a promising line of research, there are limitations with respect to Will o' the Wisps. Their existence tended to be brief, lasting only a few moments, and the spheres were only observed moving upwards. Their structure too would readily dissipate in the slightest air current. (8)

It has been proposed that the possible source of Will o' the Wisp's light is that of Glow Worms. These insects, of the Malacodermide family, have the remarkable ability to produce light from cells on their abdomen, to attract mates. Of the 2000 or so species two occur in Britain, one of which, *Phosphaenus Hemipterus*, is extremely rare. The other, *Lampyrus Noctiluca*, is commoner, although pesticides and loss of habitat have led to their decline. Glow Worm colonies can be found in damp places on calcareous soils, where snails, their main food source, live.

The light of *Lampyrus Noctiluca* is bright green. It is produced by the action of the enzyme Luciferase upon the protein Luciferin, contained within special cells on the underside of the abdomen. Both males and females have the ability to produce light. Even the larvae and eggs glow, although only the male can fly.

Glow Worms, mainly active from June to August, certainly do display behaviour characteristic of Will o' the Wisps. They may be seen flitting from place to place, flying contrary to prevailing winds, and would be attracted to humans carrying a light. They also have the ability to switch their light on and off at will. Their light produces very little heat: the process is about 98% efficient, qualitatively only releasing energy in the zone of visible light to which the human eye is most sensitive.

Glow Worms have a local distribution throughout Britain. They do not, however, occur in Ireland where MacManus collected his reports and therefore cannot account for sightings of Will o' the Wisps in that country. Their light too is very distinctive and unmistakable to those familiar with it, although it is my opinion that an insect flying through mist could give the impression of a moving orb of light similar to a Will o' the Wisp.

On a par with Will o' the Wisp is the phenomenon Ball Lightning. Indeed, this phenomenon, whose formation and actions are just as peculiar and are not yet fully understood, does share many common attributes with the marsh light. Its main characteristics may be summarised as follows: Their occurrence chiefly coincides with that of thunderstorms, or within a couple of hours after the peak of such storms; its colour is mainly red, although other colours are reported; occasionally a Ball Lightning will remain motionless while others move very fast, often changing direction; some seem to move against prevailing winds while others are affected by faint breezes; some appear and disappear silently, others emit hissing or buzzing sounds and disappear with a loud report, emitting bright flashes; the reported size of Ball Lightning varies between 10 and 20 cm in diameter,



and the lack of any substantial heat is often noted; they have also been observed to enter and leave buildings through open windows and chimneys, and be attracted towards humans and display 'intelligent' behaviour.

It is tempting to assume, because of the general similarities, that Ball Lightning and Will o' the Wisps share a common origin, but Ball Lightning is a phenomenon associated with thunderstorms, whereas Will o' the Wisps tend to be localised to wetlands or graveyards, and reports rarely include both elements. Ball Lightning reports have been made in the absence of thunderstorms, as have reports of Will o' the Wisps in dry fields. In cases such as this the classification of such lights seems to be subject to the observer's own terms of reference and experiences. What is one to make of an aerial light seen over a marsh during a thunderstorm? In the absence of thunderstorms and marshland, it may well be the case that the observer is witnessing a different phenomenon, such as 'Earth Lights', as proposed by Devereux - lights reportedly seen at or near geological faults.

It is a widely held belief that the behaviour of Will o' the Wisps is directed by intelligence of supernatural origin, namely that of Fairies. Whistling, it was believed, would attract them, and in order to avoid their attention one needed to lie flat on one's face and hold your breath. To follow a Will o' the Wisp was a perilous undertaking. The light could have a hypnotic effect on the observer, sometimes appearing as a beautiful girl or a hoard of treasure to lure the unwary deep into a marsh, where the follower was usually left to flounder. The chasing of the light in hope of reward is analogous to chasing the rainbow in search of the pot of gold.

Whether the light is in itself intelligent or is merely manipulated is open to speculation. On the one hand, some hold that the lights are the spirits of the dead, especially those of the unbaptised. To the Germanic peoples, Jack o' Lanterns were the ghosts of people who had violated a landmark or boundary stone. The lights seen in graveyards were often referred to as Corpse Candles. During Halloween many children still make Jack o' Lanterns by hollowing out turnips and cutting grotesque and frightening faces through to the cavity. The object is to create an illuminated fiend's face. The results can be very effective, since the guttering of a candle placed inside animates the features of the face. The practice of representing Jack o' Lanterns this way too suggests that it is the light that is the spirit.

On the other hand, names such as Elf Fire, Friar's Lantern, Hob and his Lanthorn, Jack-w'-a-Lanthorn, Jenny-wi'-t'-Lantern, and Kit with the Canstick suggest that the lights are associated with elementals. Indeed, artists' impressions of Will o' the Wisps often depict a denizen of fairyland carrying a lantern aloft or holding the light between their hands.

In 1966, a mini mist cloud, complete with its own internal illumination, followed the then young NEM researcher Frank Earp and friends along a canal towpath. Initially, they thought they were witnessing a Will o' the Wisp,

but as the cloud followed them it generated within its mass two oddly luminescent spheres that bobbed up and down as if on elastic. When they turned to face the cloud, they encountered a black silhouette of a figure that seemed to be closely associated with the cloud. At which point their courage failed them and they fled. At the time they were out skywatching searching for UFOs, yet Frank regards their sighting/encounter as being not with a UFO occupant but with a "Boggart", a malicious goblin. (9)

In his book Passport to Magonia Jacques Vallee recounts a similar encounter, by four teenagers, in 1963. They saw a bright golden light that suddenly appeared in a field, approximately eighty yards away, floating about ten feet off the ground. It seemed to move with them as if 'observing'. The light was oval, about fifteen to twenty feet across, with a bright solid core. It disappeared behind some trees and a few seconds later a dark figure of human size shambled out towards them. It was all black, but headless but appeared to have wings like a bat. These teenagers too fled. Earlier these four had seen a reddish yellow light descending from the sky at an angle of about 60 degrees. (10)

In Passport to Magonia, Vallee propounds the theory that as man's beliefs and understanding of his environment changes then so too does his perception of the unknown, so elves and fairies with time become UFO occupants or aliens. It is curious that while sightings of Will o' the Wisps have decreased towards the end of last century, sightings of UFOs have increased.

Some researchers have suggested that the observation of an aerial light may occur when the witness is within and under the influence of an electromagnetic field, generated by a geophysical anomaly. The theory is that the field induces in the percipient a quasi-hallucinatory experience that may manifest itself as a vision of either fairies or aliens depending upon the individual's beliefs. (11) The 'intelligence' displayed by both Ball Lightning and Will o' the Wisps may be a result of such fields generated by the physics of the lights.

Initially, I was of the opinion that the Will o' the Wisp phenomenon could be relatively easily explained in physical and scientific terms. However, none of the theories so far examined fully model the observed phenomena. The widely accepted belief that Will o' the Wisps are nothing more than mere combusting marsh gas is open to some doubt, and I'm yet to be convinced that combustion, conventional or otherwise, of methane can produce a prolonged glowing body of light. That the phenomenon is of natural origin I've no doubt, although its chemistry is yet to be ascertained. The possibility that the light has intelligence or that it is directed by other intelligence is intriguing, but the evidence is circumstantial. It may be the case that the light, or some other geophysical anomaly, can affect the subconscious to give the observer the impression that they are witnessing a supernatural event, but this too is only speculative. The true nature of these lights still remains a mystery.

I have my own opinions as to which line of research would prove the most promising, but the Will o' the Wisps are notorious for leading people astray.

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#### M. SIBENALER

49 MAINE-ET-LOIRE ar. d'Angers

DURTAL

6 janvier 1969, 20 h 15

F. non

#### UN OBJET LUMINEUX DANS LE CIEL DE DURTAL

Courrier de l'Ouest du 11-1-69.

Le lundi 6 janvier, jour de l'Epiphanie, M. et Mme Paul Vaidie rentraient chez eux à « La Fontaine » (3 km de Durtal) par la N. 23, vers 20 h 15. Ils revenaient de Gouis où ils avaient été fêter le 5<sup>e</sup> anniversaire de Thierry, leur petit-fils.

M. Vaidie est cultivateur, ou, comme dit son épouse, « l'hiver il tue les cochons, l'été il bat les blés ».

Ils ont deux filles mariées, qui habitent, l'une Gouis (1 km de Durtal), l'autre La Flèche.

Voici la déclaration de Mme Vaidie :

« Nous avons quitté Gouis vers les 20 heures du soir, mon mari conduisait la 2 CV camionnette. Aussitôt après avoir emprunté la route nationale vers La Flèche, pour rentrer chez nous, mon mari remarqua la « chose » et me la fit voir, juste devant nous, **un peu à gauche de la route.**

C'était une grosse boule, deux fois grosse comme un ballon de football, rouge foncé, pas brillant... je veux dire pas lumineux, terne. C'était un rond très net sans « bavures ».

On a continué notre route jusqu'à la maison du garde-barrière qui est à environ 1 km du tournant de Gouis.



On voyait toujours la boule.

Arrivant à la barrière, mon mari est allé prévenir M. et Mme Dupin, qui sont sortis avec leurs trois enfants. Moi je suis restée dans l'auto.

La boule était juste entre les peupliers qui sont devant chez nous. Du moins on la voyait entre les arbres, elle était bien plus loin, dire combien, ça je ne sait pas.

Puis sur la boule, on a vu par en haut une large bande noire en travers, la barre a semblé s'élargir, et puis on n'a plus rien vu du tout. Ce qui est le plus drôle, c'est que la boule ne bougeait pas du tout, elle a disparu progressivement.

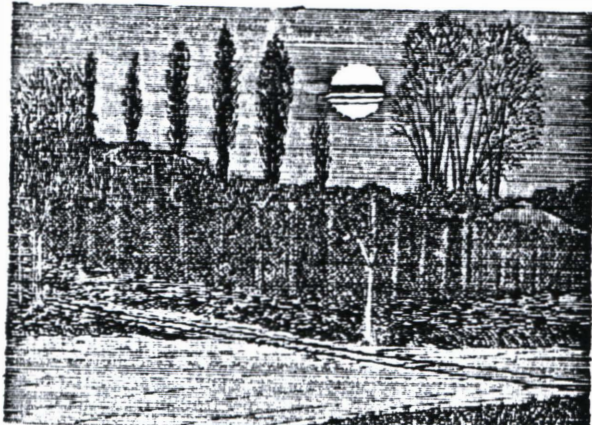
Tout cela a bien duré 10 minutes depuis le moment où on l'a vue pour la première fois. »

Après avoir demandé d'autres précisions sur le phénomène, Mme Vaidie put encore me dire qu'il lui avait semblé avoir plusieurs barres qui « sont passées par dessus » (?), se sont agrandies et ont fait disparaître l'objet. Aucun bruit, le ciel était noir, sans étoile, ni de lune, pourtant la pleine lune était le 3, donc le temps devait être couvert.

Déclaration de Mme Dupin, 48 ans, garde-barrière.

« Le lundi 6 janvier, vers 20 h 15, alors que nous regardions les « nouvelles » à la télé, on frappa à la porte. C'était M. Vaidie, notre voisin, qui nous demandait de venir vite voir ce qui se passait dehors. Sa femme était restée dans l'auto.

Nous sommes sortis tous les cinq, mon mari, moi et les trois enfants (Claudie, 14 ans ; Dominique, 10 ans ; Maryline, 9 ans). Nous nous sommes rendus jusqu'à la route, et de suite nous avons vu là-bas, (elle me montre une direction située exactement entre le N.E. et l'E) entre les deux grands arbres (ils sont à 500 mètres de la barrière, hauts de 30 mètres, et j'en ai pris une photo depuis la barrière), une boule d'un rouge comme le soleil qui se lève et plus grosse que la lune quand elle est pleine.



(Ici j'ai interrompu Mme Dupin pour lui demander si la boule semblait se trouver juste entre les arbres).

Oui, mais elle était plus loin derrière, peut-être à un kilomètre, mais pendant tout le temps qu'on l'a vue, elle n'a pas bougé de place, par moment on la voyait se balancer légèrement.

— Mais comment pouviez-vous apprécier ce balancement, puisque c'était un boule ?

— Oui, mais elle avait une barre foncée en travers, assez large, un peu au-dessus du milieu, et puis ensuite sont apparues des petites barres plus fines en dessous de la grande ; celles-ci se sont petit à petit élargies jusqu'à ce que toute la boule soit devenue toute noire et ait disparu.

En tout nous avons pu la voir pendant 7 à 8 minu-

tes. Nous n'avons entendu aucun bruit ».

Mme Dupin pense qu'à ce moment-là il y avait des étoiles, mais n'ose l'affirmer, mais n'a pas remarqué si la lune était là. Il y avait peu de vent.

**Commentaires.** — Cette enquête très vivante, conduite par M. Sibenaler, nous met en présence, comme à Doué-la-Fontaine (Contact 98 bis), d'une observation bien décrite qui a eu 9 témoins.

Cependant, dans ce cas précis, nous avons une concurrente redoutable : la lune. Pour démystifier le phénomène, nous avons fait appel à trois spécialistes, car il se trouve justement que nous connaissons l'heure exacte, et les coordonnées de l'observation : latitude et longitude. De plus, les peupliers nous donnent l'inclinaison sur la direction O-E à 5 degrés près et l'angle avec l'horizon à 1 ou 2 degrés près.

Nous citerons MM. Karcher, d'Halluin, Monnerie, qui situent tous les trois la lune dans la direction exacte de l'observation !

Il ne faudrait pas pour autant se hâter de conclure que nos témoins ont pris la lune pour un phénomène anormal. Ce sont des gens qui vivent à la campagne, qui voient la lune sous tous ses aspects, et M. Vaidie ne se serait sûrement pas arrêté pour alerter ses voisins, s'il avait eu le moindre doute.

M. Sibenaler, poursuivant ses recherches, nous écrit :

« La météo locale précise pour le 6 janvier à 20 heures : temps couvert avec trous, plafond 1.800 m, vent faible O-SO. »

Il nous décrit une observation lunaire :

« J'ai eu la curiosité, à 2 jours de la P.L., mardi 4 février, de surveiller son lever qui devait se faire à 20 h 09 légale, donc dans des conditions très voisines de celles de Durtal, il y a 1 mois.

« Son lever a été retardé à Angers de près de 10 minutes.

« Très lentement est monté au NE-E une lune **énorme** (1) et très rouge — vraiment d'une couleur insolite — mais c'est indéniable, on reconnaît la lune et ses taches, il est impossible de se tromper, même si elle est traversée par des nuages.

« Elle paraissait plus grosse que l'objet décrit par les témoins ».

C'est pourquoi nous avons écrit qu'il ne faudrait se hâter de conclure, mais ce n'est pas là tous nos éléments.

Donc, l'objet était rayé de 2 raies sombres, comme à Doué, et ce n'était pas la lune. Nous verrons que, 8 jours plus tard, à Bazouges, un autre phénomène est observé, et ce n'est pas la lune. Nous avons rapporté ces deux observations sur la même carte, et l'on s'aperçoit que le phénomène de Durtal, et celui de Bazouges sont situés dans la même zone, à moins de 1 240 m l'un de l'autre.

Chacun pourra conclure selon son tempérament, nous vous avons fourni toutes les données.

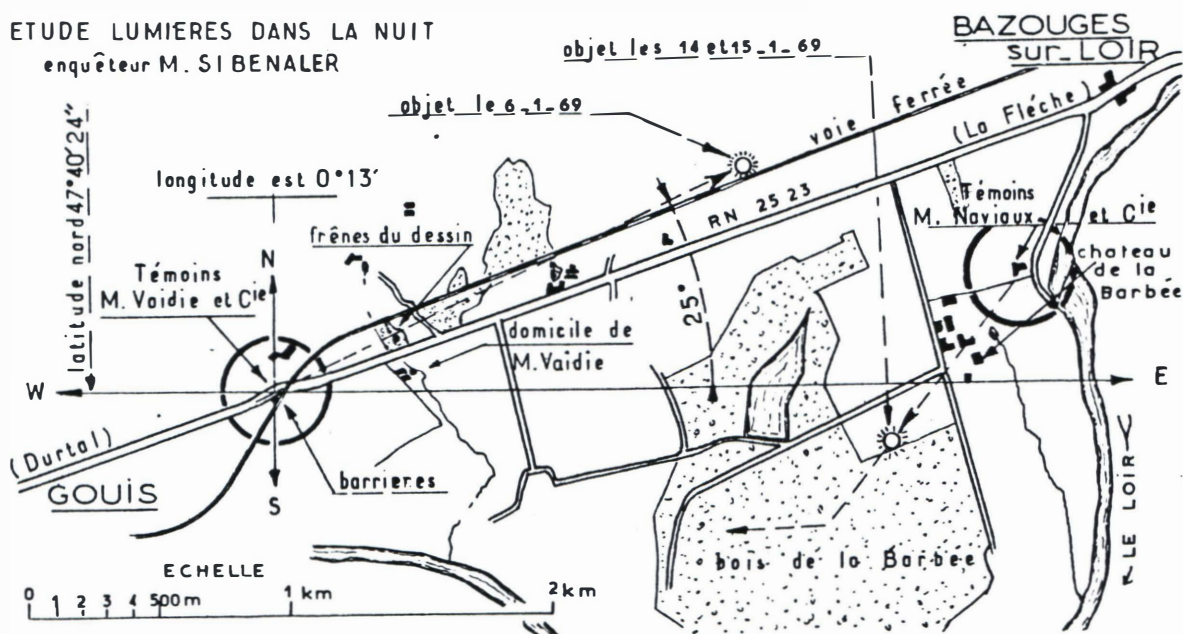
(1) La lune paraît **énorme** à son lever sur l'horizon, c'est un fait d'observation connu.

Les auteurs disent que c'est une illusion d'optique : L'Astronomie Populaire de Flammarion indique qu'à la lunette munie de fils on constate qu'elle n'est pas plus grande.

Vincent de Callatay, dans « l'Atlas de la Lune », écrit également qu'il s'agit d'une illusion, mais qu'à vrai dire aucune explication n'a encore été universellement admise pour justifier cette singulière illusion qui elle est réelle.

bol-0034

# ETUDE LUMIERES DANS LA NUIT enquêteur M. SIBENALER



72 SARTHE ar. et c. de La Flèche

## BAZOUGES-SUR-LOIR

14-1-69 et 15-1-69

F. non

J'ai rendu visite à M. et Mme Naviaux, qui tiennent le restaurant du Moulin de La Barbée, à Bazouges-sur-Loir. J'ai conversé longuement avec M. Naviaux, un homme très sympathique, âgé de 47 ans, qui s'est retiré à Bazouges après avoir tenu un établissement à Paris, rue de la Muette. Combattant de la guerre 39-40, puis campagne d'Indochine ; en 1939, il était affecté à l'observatoire du bataillon.

Très vite nous avons abordé l'objet de ma visite, sujet qu'il l'intrigue beaucoup.

Le mardi 14 janvier, vers 19 h 30, il passait dans un couloir pour se rendre aux cuisines ; couloir qui était sombre normalement, quand il remarqua **sur le mur et au plafond une lumière rougeâtre insolite** dont il ne connaissait pas la source : ni dans le couloir, ni dans la cour, il n'y a d'électricité. La lumière semblait venir de la cour **qui était totalement obscure**. M. Naviaux se dirigea vers la fenêtre pour voir d'où venait cette lueur. **C'était une flaque d'eau qui reflétait une lumière se trouvant dans le ciel.**

Mais je laisse la parole à M. Naviaux :

« C'était vraiment étrange. C'était un objet qui ressemblait en forme et en grosseur à un ballon de football, donnant un grosse lueur rouge qui débordait de l'objet (ici je demande des précisions).

Comment vous dire ? Le ballon était rouge-orange assez brillant, mais on aurait dit qu'il y avait devant comme un nuage sur lequel se reflétait la lueur, ce qui en augmentait la surface d'une cinquantaine de fois.

« Bientôt l'objet se déplaça franchement sur la gauche, lentement, et en semblant se balancer. Ceci a bien duré un quart d'heure puis tout s'est **« éteint » brusquement ».**

A l'origine de l'observation l'objet se trouvait dans la direction sud, sud-ouest. Comme point de repère, M. Naviaux avait le château de La Barbée, appartenant au comte de la Bouillèrie, visible de la cour du restaurant ; de cet endroit il semblait se situer à une centaine de mètres du château, et dans le ciel à 45°

sur l'horizon. « C'était bien le château », celui-ci est distant de 400 mètres du restaurant.

« J'avais appelé ma femme et les deux jeunes employés de cuisine pour voir cette chose. Tous les quatre nous pouvons vous dire la même chose. Puis comme il n'y avait plus rien à voir, on est rentré.

« Mais dans la soirée, vers 20 h 45, l'objet est **« revenu »** exactement à la même place, un peu à droite du château, à la même hauteur, aussi gros, et cette fois il est resté environ trois-quarts d'heure avant de disparaître. Pendant ce temps-là, il a **changé d'intensité lumineuse** allant jusqu'au **blanc aveuglant**, et quand il était de cette couleur on voyait **autour comme des rayons lumineux** de cette même lumière blanche aveuglante. Ces rayons n'étaient pas nombreux, quatre ou cinq, tellement nets **qu'on les aurait crus matériels**. Ils avaient plus du double de l'objet.

« Puis l'objet est **redevenu rouge**, et pendant 5 minutes a diminué de volume comme s'il s'en allait à toute vitesse vers Durtal, il a diminué jusqu'à être gros comme la lumière d'une cigarette la nuit. Puis on n'a plus rien vu.




« Le lendemain (mercredi 15 janvier) vers 18 h 30, la nuit venait de tomber, nous repensions au phénomène de la veille et machinalement, en regardant dans la même direction nous y avons remarqué un disque très brillant mais qui ne scintillait pas, gros comme une sous-tasse. Il ne bougeait absolument pas. Puis, pris par nos occupations, nous sommes rentrés, mais fréquemment nous allions voir. Vers 19 h 30, on ne l'a plus vu ».

M. Naviaux m'a confirmé que durant les deux soirées le ciel était étoilé, mais que les étoiles étaient plus brillantes.

Aux autres questions habituelles, les réponses furent : aucun bruit particulier, aucun changement dans la marche des montres.

Sur le parcours Gouvis-Bazouges je n'ai constaté aucune variation de l'aiguille de la boussole.





bol - 0035

"Current Comments"

When Citation Analysis  
Strikes Ball Lightning

Eugene Garfield, Ph.D., President  
Institute for Scientific Information



May 17, 1976

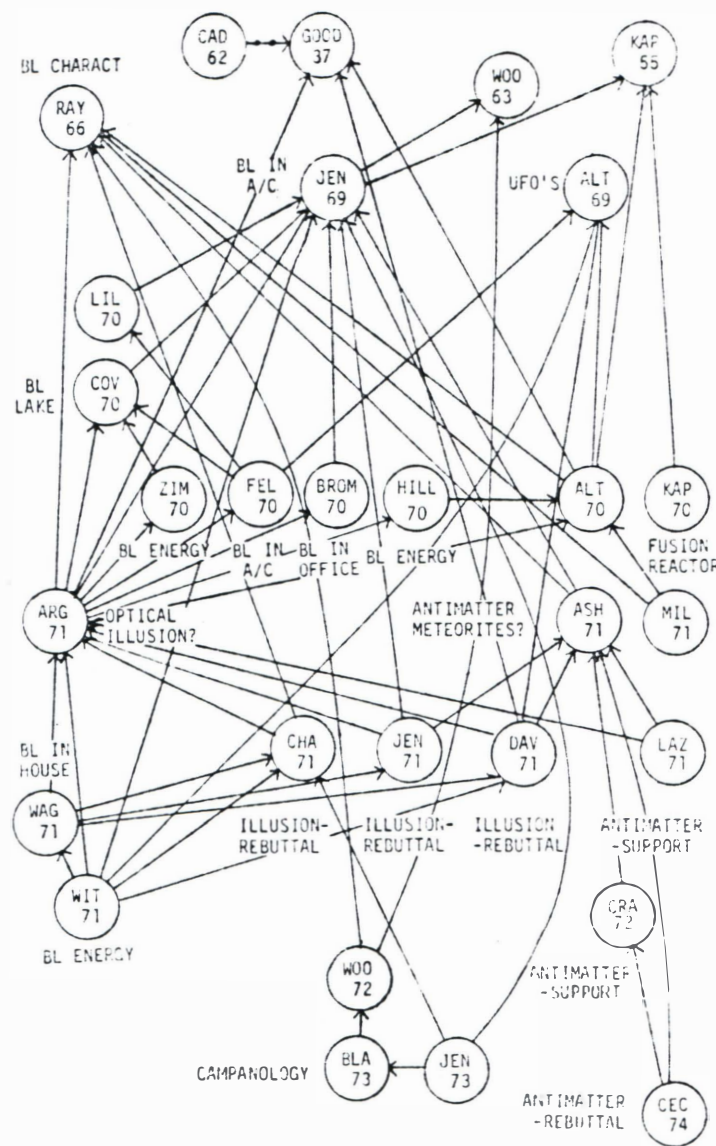
Number 20

*Thunder is good, thunder is impressive; but it is  
lightning that does the work.*--Mark Twain<sup>1</sup>

Lightning has always terrified and fascinated people. It has also inspired many myths and much superstition. For example, some misinformed people righteously assert that lightning never strikes twice in the same place. Actually, the odds for lightning hitting twice in the same spot are excellent. The conditions that attracted it in the first place--a prominence in a flat area, for example--are likely to attract it again.

The Greeks and Romans thought thunderbolts were weapons of the gods. Since scientists have now explained ordinary streak lightning as a high-voltage electrical discharge, people's fascination has been transferred to the other forms of lightning: sheet lightning, in which no single bolt is visible; St. Elmo's fire, a glow emitted by charged objects such as airplane wings; and ball lightning (also called "Kugelblitz"). Ball lightning is usually described as a moving, luminous sphere which lasts a few seconds and then dies out, either silently or explosively. Ball lightning is probably the most mysterious lightning phenomenon because scientists have utterly failed to explain it. Many researchers have viewed reports of ball lightning with the kind of skepticism and distaste usually reserved for reports of psi phenomena and UFOs. Until recently, scientists even debated the existence of ball lightning--explaining it as hallucination, optical illusion, or observer hysteria. The only evidence for it was anecdotal, mainly from amateur sightings.

But reports of ball lightning have appeared in the scientific press for over a century. In 1885, *Science* published this account by a ship's captain named Waters: "All at once a large mass of fire appeared over the vessel, completely blinding the spectators; and, as it fell into the sea some fifty yards to leeward, it caused a hissing sound, which was heard above the blast, and made the vessel quiver from stem to stern."<sup>2</sup> In 1930, an anonymous account in *Nature* reported that "a number of globes of light were seen of the size of billiard balls, extending from a few inches above the surface to a height of 7-8 feet. They slowly rose and fell



"BALL-LIGHTNING" CITATION MAP

Articles are shown as circles containing author and year.  
Adjacent words describe main theme of articles.

1976/151

vertically, sometimes within a few inches of the observers but always eluding the grasp."<sup>3</sup>

It is always pleasant for me to demonstrate the creative use of information retrieval. The ball lightning phenomenon, with its combination of mystery and possible utility, is just such an opportunity. I hope that the new generation of science teachers will use the information retrieval techniques described here to get students interested in tracing the history of other scientific discoveries. By using the *Science Citation Index*<sup>®</sup> in this way, students can feel the excitement of discovery as the threads of scientific cloth are unraveled.

According to the results of a search by my versatile colleague, A.E. Cawell,<sup>4</sup> an article with the incredible title "Thunderbolts as the X-Weapon" appeared in November 1962 in the now defunct journal *Discovery*. The paper, by C.M. Cade, contained this account of an attempt to calculate the energy of ball lightning: "A fireball 'the size of a large orange' which was observed in Dorstone, Hereford, on October 3rd, 1936, fell into a water butt containing about four gallons of water, which boiled for some minutes, and 20 minutes later was still too hot for the human hand. From this data, Professor B.L. Goodlet has calculated that the minimum energy of this fireball was 3 300 kilowatt-seconds...."<sup>5</sup> Unfortunately, the author supplies no further reference for the mysterious Professor Goodlet. So the detective work begins.

As it turns out, we were unable to find anyone who had ever cited Cade's paper, at least within the 15 years we've compiled the *SCI*<sup>®</sup>. But as I've often repeated, a name may be all one needs to begin an *SCI* search.

Goodlet's papers in the *J IEE* were cited in 1970 by M.D. Altschuler of the National Center for Atmospheric Research, Boulder, Colorado; in 1971 by E. Argyle of the Dominion Radio Astrophysical Observatory, British Columbia; and again in 1971 by P.C.W. Davies of the Institute of Theoretical Astronomy, Cambridge, England. This is shown in the figure opposite, in which we have provided a selected portion of the now extensive ball lightning literature.

In 1971, Argyle drew parallels between ball lightning and visual after-images: "The behavior and apparent properties of the positive afterimage are strikingly similar to those of ball lightning. Its shape will be the same as that of the exciting source, and it will commonly be described as a ball.... Positive afterimages last 2-10 seconds, depending on circumstances, and most lightning balls are reported to have a duration in the same range. Positive afterimages disappear rather suddenly, as do lightning balls."<sup>6</sup> Argyle dismissed Goodlet's report that water in a rain barrel had been heated by ball lightning as "unreliable."

Each explanation advanced for the ball lightning phenomenon is unsatisfactory in some respect. Early explanations held that ball lightning is formed by the combustion of material released by a lightning stroke on its impact with the ground. This material, either particles or gases, might be confined by a vortex, in the same manner as a smoke ring. Edward Hill of the University of Minnesota modified this theory to suggest that when a lightning stroke produces a separation of charges in such a ball of material, miniature lightning strokes occur within the ball.<sup>7</sup> T. Neugebauer postulated that ball lightning consists



of dense plasma containing large numbers of free electrons and positive ions.<sup>8</sup> Altschuler and his colleagues suggested that ball lightning may be a nuclear phenomenon involving the production of radioactive products, whose beta-decay would cause a glow in surrounding air molecules.<sup>9</sup>

A bizarre but not implausible theory was discussed in the same 19 March 1971 issue of *Nature* in which Argyle's "optical illusion" article was published. An article by D.E.T.F. Ashby and C. Whitehead of the United Kingdom Atomic Energy Authority suggested that ball lightning is caused by antimatter meteorites which annihilate normal matter, creating a luminous ball.<sup>10</sup> Actually, this idea was first proposed by Altschuler, who wrote in 1969 that "the hypothesis of antimatter meteorites is intriguing. If a significant amount of antimatter does exist in the universe, it is possible that tiny grains of antimatter might penetrate our galaxy and collide with the earth's atmosphere. Entering at high speeds, the grain might survive until it reached the troposphere. A fraction of a microgram of antimatter would destroy an equal mass of matter and release many megajoules of energy, perhaps creating luminous spheres."<sup>11</sup> The antimatter theory was supported when Ashby and Whitehead, using radiation detectors, observed four "unusual" radiation events. They concluded that, "The radiation events are consistent with the proposed existence of micron-sized particles of antimatter and their duration is similar to that of ball lightning; however, the correlation with thunderstorms is uncertain."<sup>10</sup>

As the ball lightning phenomenon became more scientifically respectable, two particular "events" began

to be discussed by many authors. The first was Jennison's (University of Kent) 1969 report of a lightning ball passing down the central aisle of an aircraft. Since the plane was a tanker with a full load of aviation fuel, one can imagine the observer's relief when the yellow-white lightning ball "danced out over the right wing" and disappeared into the night.<sup>12</sup> The second event was Covington's (National Research Council of Canada) 1970 observations of a drifting lightning ball which demolished the pile of a wharf, and of another lightning ball which emerged from the fireplace in a lake-side house, traveled across the room, and passed through a closed door without causing any damage.<sup>13</sup>

The two articles by Argyle and Ashby were cited in several letters to journals in 1971. Argyle's idea that ball lightning is an optical illusion was rebutted by authors who cited their own and other observers' well-documented sightings. Ashby's antimatter notion had a mixed reception.

The UFO phenomenon entered the ball lightning story via Altschuler's 1969 article in the Condon UFO report, which explained some UFO sightings as ball lightning.<sup>11</sup> The chapter was cited by several authors.

As an exercise in demonstrating that all phenomena and disciplines are somehow connected to one another, the ball lightning story has few equals. In 1973, for example, A.J.P. Blair of Germany used a novel method to calculate the magnetic energy in a lightning ball as 150 gauss. *Nature* carried the report, which stated, "In the parish of Sanford-Courtney in Devon on October 7, 1811, a sudden darkness came on, and a fire ball fell in the vicinity of the church. The ringers in the belfry, ringing at the time, declared that they never knew the

bells go so heavy, and were obliged to desist ringing. Looking down from the belfry into the church, they perceived four fire balls, which suddenly burst, and the church was filled with fire and smoke, some of which ascended to the tower, where a large beam, on which one of the bells was hung, was broken, and the gudgeon breaking, the bell fell to the floor."<sup>14</sup>

There is also a connection to nuclear fusion in the ball lightning story. In a well-cited 1955 article,<sup>15</sup> the Russian physicist Peter Kapitsa proposed that ball lightning results from a standing wave system in the electromagnetic field which accompanies thunderstorms. Windows and chimneys, through which ball lightning is often reported to have travelled, would act as waveguides for these standing waves. Elements of this idea were later used in a Soviet experimental fusion reactor, and stable balls of plasma were produced.<sup>16</sup>

Another theory involves focused cosmic-ray particles, and still another postulates that ball lightning is produced by the decay of ordinary lightning in the presence of large amounts of water.

The theoretical situation regarding ball lightning still is rather confused. It has not yet been determined whether ball lightning is a single phenomenon or a series of phenomena with diverse origins. No one has succeeded in producing ball lightning in the laboratory, although a few photographs have been reported.

Just a year ago, in a search for photographic evidence of ball lightning, two researchers at the University of Wyoming examined over 10,000 Prairie Meteorite Network photographs which contained images of over 100,000 lightning strokes. They reported finding six ball lightning

"candidate" events. "In all of the ball candidate events the scenario is the same: an ordinary appearing lightning stroke ends above ground and what appears to be a ball (producing a sequence of images) falls out of it and goes to earth."<sup>17</sup>

More recently, photographic evidence of an object "which may be similar to some varieties of ball lightning" was reported in September 1975 by three French authors, R. Fieux and C. Gary of Electricité de France, Direction des Etudes et Recherches, and P. Hubert of Commissariat à l'Energie Atomique, Service d'Electronique Physique, Centre d'Etudes Nucléaires de Saclay.<sup>18</sup> In a kind of reenactment of Benjamin Franklin's kite-and-key lightning experiment, they launched rockets with wires attached into the atmosphere. This technique was developed, they said, "in the hope of perhaps shedding new light on the controversial subject of ball lightning, since according to published statistics ball lightning is mentioned in more than 40% of the cases in which an observer describes a nearby lightning stroke." Although these researchers did not observe anything "comparable with the more remarkable tales of ball lightning folklore," they did observe and photograph the appearance of luminous "beads" during the decay of triggered lightning. "The beads generally have an initial diameter of the order of 40 cm which decreases gradually with a total lifetime of 0.3s at most. During long-lasting strokes, the initially straight channel adopts on a progressively more tortuous shape and the biggest beads occur where tortuosity is a maximum. Since there is a positive correlation between diameter and lifetime, it follows that at the end of the decay there are one





The death of professor G. W. Richmann of St. Petersburg in 1753 has been ascribed to the first experiment which succeeded, accidentally, in producing artificial ball lightning. According to Stanley Sager,<sup>23</sup> as Richmann observed the effect of a thunder-storm on a device for measuring atmospheric electricity, lightning struck a rod connected to his apparatus, causing a lightning ball to travel from the device to Richmann's forehead. The fatal experiment was witnessed by a friend of Richmann, an engraver of the Royal Academy of St. Petersburg.

or two luminous balls only. In general these objects have an upward motion of 1 or 2 m s<sup>-1</sup>, which gives an overall picture consistent with the hypothesis of a gradually cooling spheroid of hot gas."

In the same paper, the authors lend support to the early theory involving combustion of material released from the ground. They note that "light emission occurred at the foot of wooden posts" in the test area. "The light-emitting region was stationary, in contact with the ground at the place where the post enters the earth. Its shape seems roughly spherical with a diameter of about 25 cm...." They comment, "It is not surprising that some underground outgassing occurs and that the gasses escape at the point where the posts puncture the upper layer. It remains to be decided whether the light comes from hot gases only or from a combustion involving hydrogen or methane, for instance, or from a localized electric discharge mechanism."

Just a few weeks ago, Mark Stenhoff of the Physics Department of Royal Holloway College reported a case in which a woman touched and was injured by ball lightning. Stenhoff reported in *Nature* that on 8 August 1975, the woman, who lives in the Midlands area of England, was in her kitchen during a thunderstorm "when a sphere of light appeared over the cooker. The ball was ~10 cm across and surrounded by a flame-colored halo; its color was bright blue to purple. The ball moved straight towards the witness at an estimated height of 95 cm from the ground. Burning heat was felt, and there was a singeing smell. A sound something like a rattle was heard."<sup>19</sup>

The woman herself reported that, "The ball seemed to hit me below the

belt, as it were, and I automatically brushed it from me and it just disappeared. Where I brushed it away there appeared a redness and swelling on my left hand. It seemed as if my gold wedding ring was burning into my finger." The lightning ball produced a hole in the woman's dress and underwear at the point where it struck her. Her legs became red and numb. The woman, who had never before heard of ball lightning, felt that the ball exploded just as she touched it.

Commenting on this report in a *Nature* editorial, P.C.W. Davies notes that progress in ball lightning research is hampered by the lack of precise, reliable observational data. He suggests that, "The present unsatisfactory situation would be greatly improved if the aura of mystery and superstition surrounding unusual events were dispelled. Good, detailed eye-witness reports of luminous balls are frequently made by competent observers such as airline pilots, but are rarely passed on to scientists. Instead, many of them find their way into military files, where they are shrouded in a ridiculous secrecy. (Incredibly, the British Ministry of Defence continues to deny scientists access to their accounts of these events.) With proper cooperation between scientists and the public, particularly the local press, and the civil aircraft authorities, it would be possible to follow up ball lightning reports rapidly, enabling tests for radioactivity and so forth to be carried out."<sup>20</sup>

To help clarify the situation, a few individuals have turned their energies to collecting ball lightning reports. One of these is William Corliss of Glen Arm, Maryland, a consultant to NASA who has compiled *Strange Phenomena*,<sup>21</sup> a "sourcebook" which

contains abstracts of 75 ball lightning reports. Also notable is the ball lightning bibliography compiled by J.D. Barry of the US Air Force's Space and Missile Systems Organization, Los Angeles. This bibliography, copies of which are available from the author, cites over 1,100 ball lightning reports and references spanning 350 years.<sup>22</sup> Another excellent source of information on the scientific history of ball lightning is a book published in 1971, *The Nature of Ball Lightning* by Stanley Singer, director of Athenex Research Associates, Pasadena, California.<sup>23</sup> According to Singer, Faraday felt that any relation between ball lightning and streak lightning was "more than doubtful," and Lord Kelvin held that ball lightning was nothing more than an optical illusion. The selected ball lightning bibliography which follows is intended to stimulate

discussion, and possibly research, of this centuries-old but still fascinating subject.

Returning to the 1962 article by Cade, we've been unable to find any other articles about "X-Weapons." Maybe the idea was impractical-or maybe the work was so successful that it was classified. What surprises me most about the ball lightning story is the failure of any leading American or Soviet journal to present a comprehensive discussion of this area of research. The state of the literature on ball lightning is similar to Shakespeare's description of Romeo and Juliet's love:

*It is too rash, too unadvis'd,  
too sudden;  
Too like the lightning: which doth  
cease to be  
Ere one can say it lightens.*<sup>24</sup>

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"Lumières Dans La Nuit", n°99bis, Mai 1969, page 10.

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### M. JOURDREN

#### LA BOULE PREND LE TRAIN... en filature...

Lundi soir 16 décembre à 19 heures le rapide « Armor » quittait Saint-Brieuc à destination de Rennes. A peine arrivé à Yffignac, petite localité située à 12 km de Saint-Brieuc, et près de la mer, un voyageur, M. Nodier, aperçoit à droite du train une boule lumineuse d'un blanc éblouissant. Elle épousait si fidèlement la marche du train qu'il crut tout d'abord avoir affaire à un reflet sur la vitre. Il baissa celle-ci, et tout le compartiment put alors voir la boule, bientôt tout le compartiment voisin.

A bras tendu elle apparaissait comme une pièce de 20 centimes mais sa distance ne pu pas être évaluée, grâce à d'autres témoignages, écrit M. Jourden, je puis dire que l'objet était très gros.

Les contours étaient très nets et M. Dodier avec les autres témoins sont d'accord pour affirmer que l'objet suivait le train. Ses évolutions étaient vives et souples, mais sa vitesse inconstante. Il s'attardait au-dessus des agglomérations ou les évitait, pour rattraper ensuite le train. Pourvu d'une très grande facilité manœuvrière, le long de ce train roulant à 140 km à l'heure, l'objet pouvait ralentir instantanément ou accélérer de même. Ceci est reconnu par d'autres témoins habitants près de Rennes.

A Rennes, en effet, l'objet a disparu aux yeux des voyageurs, mais il a été aperçu par des personnes demeurant à proximité de la voie ferrée, et leurs témoignages nous apportent quelques précisions. Le

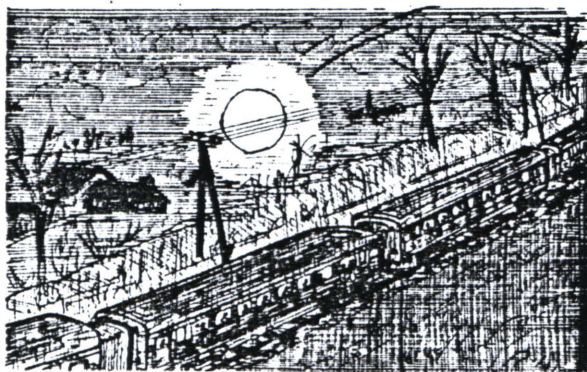
diamètre de l'objet, qui évoluait à 200 mètres environ, a été évalué entre 8 et 10 mètres, mais ils n'ont perçu aucun bruit particulier. La lumière éclatante de l'objet n'a pas permis de distinguer des détails éventuels. Il se confirmerait qu'il paraissait éviter les lumières de la ville.

A Lamballe aussi, la boule s'était arrêtée en même temps que le rapide.

Sa disparition eu lieu vers 20 h 40 dans les nuages, qui étaient assez bas cette nuit-là. Inutile d'ajouter que les conversations des voyageurs allaient bon train... elles aussi.

Avouons qu'il y a de quoi en perdre la... boule. Des nouvelles célébrités télégéniques ont fait leur apparition sur le petit écran, lors du voyage d'Apollo 8 et des millions de spectateurs ont pu voir, au-dessus de la surface nuageuse qui entourait la Terre, des boules brillantes qui croisaient en tous sens. Le speaker, très décontracté, nous expliquait qu'il s'agissait des « Mouches de Feu » qui virevoltaient ainsi : des « MDF » ! Il est d'ailleurs assez curieux qu'on ne nous en reparle plus, sans doute que l'explication fournie, « débris spaciaux », (ou peut-être avon-nous pensé, satellites), a dû satisfaire les millions de spectateurs. Nous avouons ne pas l'avoir été, mais allez donc voir ! Mais voici qu'une de ces « mouches » se met à suivre le train, et alors nous posons la question : M.D.F. ou M.O.C., peu importe, qu'elle est pour nos savants l'explication de ce brin de conduite... intelligente ?

(Dessin exécuté par M. Jourden).



## LITERATURE,

THE MIRROR OF AMUSEMENT AND INSTRUCTION Vol 25 p. 233-234 (11 April 1835)

## THE WILL O' WISP.

THE following original description of the *Will o' Wisp*, or *ignis fatuus*, by a clergyman, an active observer of nature, appeared a short time since in the *Shrewsbury Chronicle*:—"I do not know precisely what the Romans thought of the Will with the Wisp; but they called it *ignis fatuus*—'a foolish,' perhaps they meant, 'a delusive, fire.' Whatever it was, I have had scarcely any thing else in my brains during the whole of the preceding week. This fire has existed for thousands of years, and thousands have seen it in circumstances favourable to minute observation; yet, hitherto, no naturalist has explained its substance, its organization, or its powers. It has been related by a gentleman, a native of Shropshire, whose veracity is above suspicion, viewing its blazing sphere through a spy-glass, discovered in it the lineaments of the human form. I questioned whether the most intense exertion of the eye, unassisted by an instrument, could discern these features. An opportunity of the kind was presented to me lately, where an *ignis fatuus* gradually approached me. His front exhibited a circular surface, resplendent with a white, silvery light, but flat, or with very slight convexity, with no perceptible trace of constituent members or component parts. Easily I might have received it in my hand. At the precise moment of passing the eye it was scarcely visible, as it then displayed little more than its thin verge or narrow ring. Presently after, the complete circle of its rear was revealed to the view, brilliant as its front, but distinctly marked with two wings, resembling beautiful silken webs of the clearest transparency, fixed in a perpendicular position, each extending two inches in length and one in breadth, and covering the whole of its posterior disk, except a small triangular space and its crest, on the lower corner of which his head, probably, though imperceptibly, reposed. The wings were in constant, easy action, propelling the body on a principle different to that observable in every species of birds. Their movements were perpendicular, alternately receding and closing on the surface, and by their retrogressive impulse on the atmosphere, preserving the continuity of its flight. I conclude that this singular animal subsists upon flies, attracted towards it by the luminous appearance it presents." W. G. C.